CHAPTER 2A

Student: _____

1. Simplify and collect like terms: $(-p) + (-3p) + (4p)$

2. Simplify and collect like terms: $(5s - 2t) - (2s - 4t)$

3. Simplify and collect like terms: $4x^2y + (-3x^2y) - (-5x^2y)$

4. Simplify and collect like terms: $1 - (7e^2 - 5 + 3e - e^3)$

5. Simplify and collect like terms: $\left(6x^2 - 3xy + 4y^2\right) - \left(8y^2 - 10xy - x^2\right)$

6. Simplify and collect like terms: $6a - 3a - 2(2b - a)$

7. Perform the operation indicated and collect like terms: $4a(3ab - 5a + 6b)$

8. Perform the operation indicated and collect like terms: $9k(4 - 8k + 7k^2)$

9. Perform the operation indicated and collect like terms: $-5xy(2x^2 - xy - 3y^2)$

10. Perform the operation indicated and collect like terms: $(3p^2 - 5p)(-4p + 2)$

11. Perform the operation indicated and collect like terms: $3(a - 2)(4a + 1) - 5(2a + 3)(a - 7)$

12. Perform the operation indicated and collect like terms: $5(2x - y)(y + 3x) - 6x(x - 5y)$

13. Perform operations and gather like terms: $6(4y - 3)(2 - 3y) - 3(5 - y)(1 + 4y)$

14. Multiply and collect like terms: $4(3a + 2b)(2b - a) - 5a(2a - b)$

15. Perform the operation indicated and collect like terms: $\frac{18x^2}{3x}$

16. Perform the operation indicated and collect like terms: $\dfrac{6a^2b}{-2ab^2}$

17. Perform the operation indicated and collect like terms: $\dfrac{x^2y - xy^2}{xy}$

18. Perform the operation indicated and collect like terms: $\dfrac{-4x + 10x^2 - 6x^3}{-0.5x}$

19. Perform the operation indicated and collect like terms: $\frac{12x^3 - 24x^2 + 36x}{48x}$

20. Perform operations and gather like terms: $\frac{5b-4}{4} - \frac{25-b}{1.25} + \frac{7}{8}b$

21. Perform operations and gather like terms: $\frac{96nm^2 - 72n^2m^2}{48n^2m}$

22. Simplify: $a^2 \times a^3$

23. Simplify: $\left(x^6\right)\left(x^{-4}\right)$

24. Simplify: $b^{10} \div b^6$

25. Simplify: $h^{7} \div h^{-4}$

26. Simplify: $(1+i)^{4} \times (1+i)^{9}$

27. Simplify: $(1+i) \times (1+i)^{n}$

28. Simplify: $\left(x^4\right)^7$

29. Simplify: $\left(y^3\right)^3$

30. Simplify: $\left(t^6\right)^{1/3}$

31. Simplify: $\left(n^{0.5}\right)^{8}$

32. Simplify: $\dfrac{\left(x^{5}\right)\left(x^{6}\right)}{x^{9}}$

33. Simplify: $\dfrac{(x^{5})^{6}}{x^{9}}$

34. Simplify: $[2(1+i)]^2$

35. Simplify: $\frac{9y-7}{3} - 2.3(y-2)$

36. Simplify and collect like terms: $\frac{2x+9}{4} - 1.2(x-1)$

37. Simplify and collect like terms: $\frac{x}{2} - x^2 + \frac{4}{5} - 0.2x^2 - \frac{4}{5}x + \frac{1}{2}$

38. Simplify and collect like terms: $\frac{8x}{0.5} + \frac{5.5x}{11} + 0.5(4.6x - 17)$

39. Simplify and collect like terms: $\frac{2x}{1.045} - \frac{2.016x}{3} + \frac{x}{2}$

40. Perform the operation indicated and collect like terms: $\dfrac{120(1+i)^2+180(1+i)^3}{360(1+i)}$

41. Simplify: $\left(\dfrac{1+i}{3i}\right)^3$

42. Simplify: $\dfrac{4r^5t^6}{\left(2r^2t\right)^3}$

43. Simplify: $\dfrac{\left(-r^3\right)(2r)^4}{\left(2r^{-2}\right)^2}$

44. Evaluate to six-figure accuracy: $(1.0075)^{24}$

45. Evaluate: $3d^2 - 4d + 15$ for $d = 2.5$

46. Evaluate: $15g - 9h + 3$ for $g = 14$, $h = 15$

47. Evaluate: $7x(4y - 8)$ for $x = 3.2$, $y = 1.5$

48. Evaluate: $I \div Pr$ for $P = \$500$, $I = \$13.75$, $r = 0.11$

49. Evaluate and calculate to the cent: $\frac{N}{1-d}$ for N = \$89.10, d = 0.10

50. Evaluate and calculate to the cent: $P(1+rt)$ for P = \$770, r = 0.013, $t = \frac{223}{365}$

51. Evaluate and calculate to the cent: $\frac{S}{1+rt}$ for S = \$2,500, r = 0.085, $t = \frac{123}{365}$

52. Evaluate to six-figure accuracy: $(1.05)^{1/6} - 1$

53. Evaluate to six-figure accuracy: $\dfrac{(1+0.0075)^{36} - 1}{0.0075}$

54. Evaluate to six-figure accuracy: $\dfrac{\left(1.00\overline{6}\right)^{240} - 1}{0.00\overline{6}}$

55. Evaluate to six-figure accuracy: $(1+0.025)^{1/3}-1$

56. Evaluate and calculate to the cent: $P(1+i)^n$ for P = \$1,280, i = 0.025, n = 3

57. Evaluate and calculate to the cent: $\frac{S}{(1+i)^n}$ for S = \$850, i = 0.0075. n = 6

58. Evaluate accurate to the cent: $L(1-d_1)(1-d_2)(1-d_3)$ for L = \$340, $d_1 = 0.15,\ d_2 = 0.08,\ d_3 = 0.05$

59. Evaluate accurate to the cent: $\frac{R}{i}\left[1-\frac{1}{(1+i)^n}\right]$ for R = \$575, i = 0.085, n = 3

60. Evaluate to six-figure accuracy: $8^{4/3}$

61. Evaluate to six-figure accuracy: $\left(-27^{2/3}\right)$

62. Evaluate to six-figure accuracy: $5^{-3/4}$

63. Evaluate to six-figure accuracy: $(0.001)^{-2}$

64. Evaluate to six-figure accuracy: $0.893^{-1/2}$

65. Evaluate to six-figure accuracy: $(1.0085)^5(1.0085)^3$

66. Evaluate to six-figure accuracy: $(1.0085)^5(1.0085)^3$

67. Evaluate to six-figure accuracy: $(1+0.055)^{1/6}-1$

68. Evaluate to six-figure accuracy: $\sqrt[3]{1.03}$

69. Evaluate to six-figure accuracy: $\sqrt[6]{1.05}$

70. Evaluate to six-figure accuracy: $\left[\left(-\frac{3}{4}\right)^2\right]^{-2}$

71. Evaluate to six-figure accuracy: $\left(\frac{2}{3}\right)^3\left(-\frac{3}{2}\right)^2\left(-\frac{3}{2}\right)^{-3}$

72. Evaluate to six-figure accuracy: $\frac{1-1.0225^{-20}}{0.0225}$

73. Evaluate to six-figure accuracy: $\dfrac{1.03^{16}-1}{0.03}$

74. Evaluate and calculate to the cent: $R\left[\dfrac{(1+i)^n-1}{i}\right]$ for R = \$550, i = 0.085, n = 3

75. Evaluate and calculate to the cent: $R\left[\dfrac{(1+i)^n-1}{i}\right](1+i)$ for R = \$910, i = 0.1038129, n = 4

76. Evaluate and calculate to the cent: $R\left[\frac{(1+i)^n - 1}{i}\right](1+i)$ for R = \$630, i = 0.115, n = 2

77. Simplify: $\frac{\left(-3x^2\right)^3\left(2x^{-2}\right)}{6x^5}$

78. Solve: $\frac{1}{3}(x - 2) = 4$

79. Solve: $y = 192 + 0.04y$

80. Solve: $x - 0.025x = 341.25$

81. Solve: $12x - 4(2x - 1) = 6(x + 1) - 3$

82. Solve: $3y - 4 = 3(y + 6) - 2(y + 3)$

83. Solve: $8 - 0.5(x + 3) = 0.25(x - 1)$

84. Solve: $5(2 - c) = 10(2c - 4) - 6(3c + 1)$

85. Solve the following pair of equations. Verify your solution. $x - y = 2$ $3x + 4y = 20$

86. Solve the following pair of equations. Verify your solution. $y - 3x = 11$ $5x + 30 = 4y$

87. Solve the following pair of equations. Verify your solution. $7p - 3q = 23$ $-2p - 3q = 5$

88. Solve the following pair of equations. Verify your solution. $y = 2x\,7x - y = 35$

89. Solve each of the following pairs of equations to three-figure accuracy.

a)
$$\begin{aligned} 4a - 5b &= 30 \\ 2a - 6b &= 22 \end{aligned}$$

b)
$$\begin{aligned} 76x - 29y &= 1050 \\ -213x - 63y &= 250 \end{aligned}$$

90. Solve for x to five-figure accuracy: $\dfrac{x}{1.08^3} + \dfrac{x}{2}(1.08)^4 = \$850$

91. Solve for x to five-figure accuracy:

$$2x\left(1+0.085\times\frac{77}{365}\right)+\frac{x}{\left(1+0.085\times\frac{132}{365}\right)}=\$1565.70$$

92. Solve for x to five-figure accuracy:

$$\frac{2x}{1+0.13\times\frac{92}{365}}+x\left(1+0.13\times\frac{59}{365}\right)=\$831$$

93. Solve for x to five-figure accuracy:

$$3x\left(1.03^{5}\right)+\frac{x}{1.03^{3}}+x=\frac{\$2500}{1.03^{2}}$$

94. Solve accurate to the cent: $\frac{x}{1.1^2} + 2x(1.1)^3 = \$1000$

95. Solve accurate to the cent: $\frac{3x}{1.025^6} + x(1.025)^8 = \$2641.35$

96.

Solve the following pair of equations. Verify your solution. Round final answers to two decimals.

$-3c + d = -550$

$0.7c + 0.2d = 550$

97. Solve the following pair of equations. Verify your solution. $0.03x + 0.05y = 51$ $0.8x - 0.7y = 140$

98. Solve the following pair of equations. Verify your solution. $2v + 6w = 1$ $-9w + 10v = 18$

99. Solve the following pair of equations. Verify your solution. $2.5a + 2b = 11$ $8a + 3.5b = 13$

100. Solve the following pair of equations. Verify your solution. $37x - 63y = 235$ $18x + 26y = 468$

101. Solve the following pair of equations. Verify your solution. $68.9n - 38.5m = 57$ $45.1n - 79.4m = -658$

102. Solve the following pair of equations. Verify your solution.

$3x + 5y = 11$

$2x - y = 16$

103. Solve accurate to the cent: $\frac{2x}{1.03^7} + x + x\left(1.03^{10}\right) = \$1000 + \frac{\$2000}{1.03^4}$

104. Solve accurate to the cent: $x(1.05)^3 + \$1000 + \frac{x}{1.05^7} = \frac{\$5000}{1.05^2}$

105. $$x\left(1+0.095\times\frac{84}{365}\right)+\frac{2x}{\left(1+0.095\times\frac{108}{365}\right)}=\$1160.20$$

Solve accurate to the cent:

106.Graph the following equation: $-2x + y = 0$ over the range $x = -3$ to $x = 6$

107.Graph following equations: $3x - 4y + 12 = 0$ over the range $x = -8$ to $x = 12$

108.Graph following equations: $2x + y = 4$ over the range $x = -3$ to $x = 6$

109.Graph the following equations: $y = 60x + 6{,}000$ over the range $x = 0$ to $x = 50$

110.Graph the following equations: $y = 4.5x + 5{,}000$ over the range $x = 0$ to $x = 6{,}000$

111. Determine the slope and y-intercept of each of the following equations.

a) $2x = 3y + 4$

b) $8 - 3x = 2y$

c) $8x - 2y - 3 = 0$

d) $6x = 9y$

112. A plumber charges a flat $100 for a home service call plus $20 per 15 minutes of labour. Write an equation for calculating the total charges, C, in terms of the hours of labour, H. If you were to plot a graph of C vs. H, what would be the slope and C-intercept of the line?

113. In his sales job, Ehud earns a base salary of $1500 per month plus a commission of 5% on sales revenue. Write an equation for calculating his gross earnings, E, for a month in terms of his sales revenue, R. If you were to plot a graph of E vs. R, what would be the slope and E-intercept of the line?

114. The formula for converting from Celsius temperatures, C, to Fahrenheit temperatures, F, is $F = \frac{9}{5}C + 32$.

a) If you were to plot a graph of F vs. C, what would be the slope and F-intercept of the line?

b) The slope represents the change in F per unit change in C. Use the value of the slope to determine the increase in Fahrenheit temperature corresponding to a 10 Celsius-degree rise.

c) Rearrange the given formula to obtain a formula for converting from Fahrenheit temperatures to Celsius temperatures. What would be the slope and C-intercept if C vs. F were plotted on a graph?

115.Use the graphical method to solve the following pair of equations.

$$x + y = 2$$
$$x = 5$$

116.Use the graphical method to solve the following pair of equations.

$$x - 3y = 3$$
$$y = -2$$

117.Use the graphical method to solve the following pair of equations.

$$x + y = 4$$
$$2x - y = 8$$

118.Use the graphical method to solve the following pair of equations.

$$y - 3x = 11$$
$$5x + 30 = 4y$$

119.A web site had 2/7 more hits last month than in the same month of the preceding year. If there were 2655 hits last month, how many were there 1 year earlier?

120. The retail price of a pair of skis consists of the wholesale cost to the retailer plus the retailer's markup. If skis retailing for $712 are marked up by 60% of the wholesale cost, what is that wholesale cost?

121. The price tags in Annie's Flower Shop include the 13% Harmonized Sales Tax (HST). How much HST will she report for a plant sold at $39.95?

122. A stockbroker's commission on a transaction is 2.5% of the first $5,000 of the transaction amount and 1.5% of the remainder. What was the amount of a transaction that generated a total commission of $227?

123. A caterer has the following price structure for banquets. The first 20 meals are charged the basic price per meal. The next 20 meals are discounted by $2 each and all additional meals are each reduced by $3. If the total cost for 73 meals comes to $1686, what is the basic price per meal?

124. The annual dues for the Southern Pines Golf Club are $2140 for regular members and $856 for student members. If the total revenue from the dues of 583 members for the past year was $942,028, how many members did the club have in each category?

125. Product X requires 30 minutes of machining on a lathe, and product Y requires 45 minutes of machining. If the lathe was operated for 60.5 hours last week for machining a combined total of 93 units of Products X and Y, how many units of each product were produced?

126. Mr. Parker structured his will so that each of his four children will receive half as much from the proceeds of his estate as his wife, and each of 13 grandchildren will receive one-third as much as each child. After his death, $759,000 remains after expenses and taxes for distribution among his heirs. How much will each child and grandchild receive?

127. To coordinate production in a three-stage manufacturing process, Stage B must be assigned 60% more workers than Stage A. Stage C requires three-quarters as many workers as Stage B. How should the foreman allocate 114 workers among the three stages?

128. Econo Car offers two plans for one-week rentals of a compact car. A rate of $295 per week includes the first 1,000 kilometres. Extra distance costs 15 cents per kilometre. A weekly rate of $389 allows unlimited driving. Rounded to the nearest kilometre, beyond what driving distance is the unlimited driving plan cheaper?

129. Alicia pays 38% income tax on any additional earnings. She has an opportunity to work overtime at 1.5 times her base wage of $23.50 per hour. Rounded to the nearest quarter hour, how much overtime must she work to earn enough money (after tax) to buy a canoe that costs $2750 including sales taxes?

130. A firm received a bill from its accountant for $3,310, representing a combined total of 41 "billable" hours for both the Certified General Accountant (CGA) and her accounting technician, for conducting the firm's audit. If the CGA charges her time at $120 per hour and the technician's time at $50 per hour, how many hours did each work on the audit?

131. Joan, Stella, and Sue have agreed to form a partnership. For the original capital investment of $32,760, Sue agrees to contribute 20% more than Joan, and Joan agrees to contribute 20% more than Stella. How much will each contribute?

132. The annual net income of the SGR partnership is to be distributed so that Sven receives 30% less than George, and Robert receives 25% more than George. If the past year's net income was $88,880, what amount should be allocated to each?

133. It takes 20 minutes of machine time to manufacture Product X and 30 minutes of machine time to manufacture Product Y. If the machine operated 47 hours last week to produce a combined total of 120 units of the two products, how many units of Y were manufactured?

134. The tickets for a hockey game cost $19.00 for the blue LO and $25.50 for the red LO. If 4,460 tickets were sold for a total of $93,450, how many seats were sold in each LO?

135. Regal Resources owns a 58% interest in a mineral claim. Yukon Explorations owns the remainder. If Regal sells one-fifth of its interest for $1.2 million, what is the implied value of Yukon's interest?

136. The statistics for a professional accounting program indicate that five-sevenths of those who enter the program complete Level 1. Two-ninths of Level 1 completers do not finish Level 2. If 587 students completed Level 2 last year, how many (including this group of 587) began Level 1?

137. The profits from a partnership are to be distributed so that Grace receives 20% more than Kajsa, and Mary Anne receives five-eighths as much as Grace. How much should each receive from a total distribution of $36,000?

138. A hockey arena has 2500 seats in the preferred red LOs near centre ice and 4500 seats in the less desirable blue LOs. At regular season prices, a sell-out would generate ticket revenue of $50,250 for a single game. Ticket prices are raised by 20% in the "blues" and 30% in the "reds" for the playoffs. Ticket revenue from a playoff sell-out would be $62,400. What are the ticket prices for the playoffs?

139. Rory invested a total of $7,800 in shares of ABC Ltd. and XYZ Inc. One year later the investment was worth $9,310, after the shares of ABC had increased in value by 15% and the shares of XYZ were up 25%. How much did Rory invest in each company?

140. Fred has centralized the purchasing and recordkeeping functions for his three pharmacies in a single office. The annual costs of the office are allocated to the three stores. The Hillside store is charged $1,000 less than twice the charge to the Barnett store. The Westside store is charged $2,000 more than the Hillside store. What is the charge to the Westside store if the cost of operating the central office for a year is $27,600?

141. Classic Homes has found from experience that there should be 40% as many two-bedroom homes as three-bedroom homes in a subdivision, and twice as many two-bedroom homes as four-bedroom homes. How many homes of each type should Classic build in a new 96-home subdivision?

142. Broadway Mazda usually spends half as much on radio advertising as on newspaper advertising, and 60% as much on television advertising as on radio advertising. If next year's total advertising budget is $160,000, how much (rounded to the nearest dollar) should be allocated to each form of advertising?

143. A city's commercial construction by-laws require five parking spaces for every 100 square metres of retail rental space in a shopping centre. Four percent of the parking spaces must be large spaces for the physically handicapped. Of the remainder, there must be 40% more regular-size spaces than "small-car" spaces. How many parking spaces of each type are required for a 27,500 square metre shopping centre?

144. Erin has invested in both an equity mutual fund and a bond mutual fund. Her financial advisor told her that her overall portfolio rose in value by 1.1% last year. Erin noted in the newspaper that the equity fund lost 3.3% last year while the bond fund rose 7.7%. To the nearest 0.1%, what percentage of her portfolio was in the equity fund at the beginning of the year?

145. Steel is an alloy of iron and nickel. A steel recycling company has two piles of scrap steel. Pile A contains steel with 5.25% nickel content. Pile B contains steel with 2.84% nickel. The company has an order for 32.5 tonnes of steel containing 4.15% nickel. How much scrap steel should be taken from each pile for reprocessing?

146. The board of directors of Meditronics Inc. has designated 100,000 stock options for distribution to employees and management of the company. Each of three executives is to receive 2,000 more options than each of eight scientists and engineers. Each scientist and engineer is to receive 50% more options than each of 14 technicians. How many options will a person in each position receive?

147. Quality Grocer makes its own bulk "trail mix" by mixing raisins and peanuts. The wholesale cost of raisins is $3.75 per kg and the cost of peanuts is $2.89 per kg. To the nearest 0.1 kg, what amounts of peanuts and raisins should be mixed to produce 50 kg of trail mix with an effective wholesale cost of $3.20 per kg?

148. Mr. and Mrs. Chudnowski paid $1,050 to fly with their three children from Winnipeg to Regina. Mrs. Ramsey paid $610 for herself and two children on the same flight. What were the airfares per adult and per child?

149. Calculate the missing value: Initial Value = $95; Final Value = $100; Percent Change =?

150.Calculate the missing value: Initial Value = 135kg; Final Value = 35kg; Percent Change =?

151.Calculate the missing value: Initial Value = 0.11; Final Value = 0.13; Percent Change =?

152.Calculate the missing value: Initial Value = 0.095; Final Value = 0.085; Percent Change =?

153.Calculate the missing value: Initial Value = $134.39; Final Value =?; Percent Change = -12%

154.Calculate the missing value: Initial Value = 112g; Final Value =?; Percent Change = 112%

155.Calculate the missing value: Initial Value =?; Final Value = $75; Percent Change = 200%

156.Calculate the missing value: Initial Value =?; Final Value = $75; Percent Change = -50%

157.$100 is what percent more than $90?

158.$100 is what percent less than $110?

159.What amount is 17.5% more than $29.43?

160.What amount reduced by 80% leaves $100?

161.What amount reduced by 15% equals $100?

162.What is $47.50 increased by 320%?

163.What amount when increased by 25% equals $100?

164.$75 is 75% more than what amount?

165.How much is $75 after an increase of 75%?

166.What amount when decreased by 62% equals $213.56?

167.What amount when increased by 125% equals $787.50?

168.What amount is 30% less than $300?

169.$100 is 10% less than what amount?

170.What amount after a reduction of 20% equals $100?

171.How much is $900 after a decrease of 90%?

172.How much is $10,000 increased by ¾%?

173.What amount after being increased by 210% equals $465?

174. The total cost of a coat, including HST of 13% on the retail price, was $281.37. What is the retail price of the coat?

Becker Tools sold 32,400 hammers at an average price of $15.10 in Year 1 and 27,450 hammers at an average price of $15.50 in Year 2. What was the percent change from Year 1 to Year 2 in:

175. The number of hammers sold?

176. The average selling price?

177.The revenue from the sale of hammers?

An investor purchased shares of Digger Resources at a price of $0.55 per share. One year later, the shares traded at $1.55, but they fell back to $0.75 by the end of the second year after the date of purchase. Calculate the percent change in the share price:

178.In the first year

179.In the second year

180. Over both years

181. Mountain Sports is advertising "30% Off All Skiing Equipment" in its Spring Clearance Sale. On ski boots marked down to $348.60, what is the regular price?

182. The price of the shares of Nadir Explorations Ltd. fell by 76% in the past year, to the current price of $0.45 per share. In dollars and cents, how much did the price of each share drop in the past year?

183. Two years ago the shares of Diamond Strike Resources traded at a price of $3.40 per share. One year later the shares were at $11.50, but then they declined in value by 35% during the subsequent year. Calculate:

a) The percent change in the share price during the first year.

b) The current share price.

184. Barry recently sold some stock after holding it for 2 years. The stock rose 150% in price during the first year but fell 40% in the second year. At what price did he buy the stock if he sold it for $24 per share?

185. After Island Farms increased the container size for its premium ice cream from 1.65 L to 2.2 L, the retail price increased from $5.49 to $7.98. What was the percent change in the unit price?

186. Mutual Fund A charges an annual management fee of 2.38% of money under management. The corresponding management fee for Mutual Fund B is 1.65%. On the same invested amount, what percentage more fees will you pay to Fund A than to Fund B?

187. In January of 2008, the federal government reduced the GST rate from 6% to 5%. What was the resulting percent reduction in the dollar amount of GST consumers paid on any item?

188. The owner listed a property for 140% more than she paid for it 12 years ago. After receiving no offers during the first 3 months of market exposure, she dropped the list price by 10%, to $172,800. What was the original price that the owner paid for the property?

189. A car dealer normally lists new cars at 22% above cost. A demonstrator model was sold for $17,568 after a 10% reduction from the list price. What amount did the dealer pay for this car?

190. If the Canadian dollar is worth 1.5% less than the U.S. dollar, by what percentage does the U.S. dollar exceed the value of the Canadian dollar?

191. Last year, Canada's exports to the U.S. exceeded imports from the U.S. by 9.62%. By what percentage were the United States' exports to Canada less than its imports from Canada?

192. Albion Distributors' revenues and expenses for the fiscal year just completed were $2,347,000 and $2,189,000, respectively.

a) If in the current year revenues rise by 10% but expense increases are held to 5%, what will be the percent increase in operating profit?

b) If, instead, revenues decline by 10% and expenses are reduced by 5%, what will be the percent change in operating profit?

193. The Hampton District school board decided to reduce the number of students per teacher next year by 15%. If the number of students does not change, by what percentage must the number of teachers be increased?

194. The Lightning laser printer prints 30% more pages per minute than the Reliable laser printer. What percentage less time than the Reliable will the Lightning require for long print jobs?

195. If the euro is worth 32% more than the Canadian dollar, how much less (in percentage terms) is the Canadian dollar worth than the euro?

196. A hospital can increase the dollar amount budgeted for nurses' overtime wages during the next year by only 3%. The nurses union has just won an 11% hourly rate increase for the next year. By what percentage must the hospital cut the number of overtime hours in order to stay within budget?

197. Simplify: $2a-(-a)+4a-5a$

198. Simplify and collect like terms: $\left(7m^3-m-6m^2+10\right)-\left(5m^3-9+3m-2m^2\right)$

199.Simplify and collect like terms: $2(7x - 3y) - 3(2x - 3y)$

200.Simplify and collect like terms: $4(a^2 - 3a - 4) - 2(5a^2 - a - 6)$

201.Simplify and collect like terms: $15x - [4 - 2(5x - 6)]$

202.Simplify: $-4x-[-3x+2(x-6)]$

203.Perform the operation indicated and collect like terms: $(4r-3t)(2t+5r)$

204.

Perform the operation indicated and collect like terms: $\frac{32a^2b-8ab+14ab^2}{2ab}$

205.

Perform the operation indicated and collect like terms: $-(p^2 - 4pq - 5p)\left(\frac{2q}{p}\right)$

206.

Perform the operation indicated and collect like terms: $\frac{4a^2b^3 - 6a^3b^2}{2ab^2}$

207.

Evaluate and calculate to the cent: $\frac{I}{rt}$ for $r = 0.095$, $I = \$23.21$, $t = \frac{283}{365}$

208. Simplify: $\left(\frac{3a^3b^2}{a-b}\right)^4$

209. Simplify: $\left(\frac{3}{2x^2}\right)^2\left(\frac{6x^3}{5^2}\right)\left(-\frac{x}{5}\right)^{-1}$

210. Simplify: $\frac{(-2y)^3\left(x^4\right)^{-2}}{\left(x^{-2}\right)^2(4y)^2}$

211. Simplify: $$P\left(1+0.095\times\frac{135}{365}\right)+\frac{2P}{\left(1+0.095\times\frac{75}{365}\right)}$$

212. Simplify: $$\frac{(2x^4y^2z^3)^2}{4xyz^2}$$

213. Simplify and collect like terms: $$k(1+0.04)^2+\frac{2k}{(1+0.04)^2}$$

214. Simplify the following expression $\frac{4x}{2} + \frac{4.02x}{5} - \frac{x}{3}$

215. Simplify the following expression $\frac{2.8x}{2} - \frac{6.15x}{1.5} - \frac{2x}{2.75}$

216. Evaluate the following, given R = 725, I = .076, n = 4 $\frac{R}{i}\left[1 + \frac{1}{(1+i)^n}\right]$

217. Evaluate: $(1+i)^m - 1$ for i = 0.0225, m = 4

218. Simplify: $\left(-\frac{2x^2}{3}\right)^{-2}\left(\frac{5^2}{6x^3}\right)\left(-\frac{15}{x^5}\right)^{-1}$

219. Evaluate and calculate to the cent: $L(1-d_1)(1-d_2)(1-d_3)$ for L = \$490, $d_1 = 0.125,\ d_2 = 0.15,\ d_3 = 0.05$

220. Evaluate: $R[\frac{(1+i)^n - 1}{i}]$ for R = \$1,200, i = 0.02, n = 6

221. Simplify: $\frac{\left[\left(x^{1/3}\right)\left(x^{2/3}\right)x\right]^{3/2}}{\left(8x^3\right)^{2/3}}$

222. Perform operations and gather like terms: $\frac{x}{1+0.085\times\frac{63}{365}}+2x\left(1+0.085\times\frac{151}{365}\right)$

223. Simplify: $x^{7} \div x^{-4} \div x^{3}$

CHAPTER 2A Key

1. Simplify and collect like terms: $(-p) + (-3p) + (4p)$

0

Difficulty: Easy
Jerome - Chapter 02A... #1
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents
Source: Student text
Topic: Algebra
Type: Word

2. Simplify and collect like terms: $(5s - 2t) - (2s - 4t)$

$3s + 2t$

Difficulty: Easy
Jerome - Chapter 02A... #2
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents
Source: Student text
Topic: Algebra
Type: Word

3. Simplify and collect like terms: $4x^2y + (-3x^2y) - (-5x^2y)$

$6x^2y$

Difficulty: Easy

Jerome - Chapter 02A... #3

Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents

Source: Student text

Topic: Algebra

Type: Word

4. Simplify and collect like terms: $1 - (7e^2 - 5 + 3e - e^3)$

$e^3 - 7e^2 - 3e + 6$

Difficulty: Easy

Jerome - Chapter 02A... #4

Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents

Source: Student text

Topic: Algebra

Type: Word

5. Simplify and collect like terms: $\left(6x^2 - 3xy + 4y^2\right) - \left(8y^2 - 10xy - x^2\right)$

$7x^2 + 7xy - 4y^2$

Difficulty: Easy

Jerome - Chapter 02A... #5

Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents

Source: Student text

Topic: Algebra

Type: Word

6. Simplify and collect like terms: $6a - 3a - 2(2b - a)$

$5a - 4b$

Difficulty: Easy

Jerome - Chapter 02A... #6
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents
Source: Student text
Topic: Algebra
Type: Word

7. Perform the operation indicated and collect like terms: $4a(3ab - 5a + 6b)$

$12a^2b - 20a^2 + 24ab$

Difficulty: Easy
Jerome - Chapter 02A... #7
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents
Source: Student text
Topic: Algebra
Type: Word

8. Perform the operation indicated and collect like terms: $9k(4 - 8k + 7k^2)$

$36k - 72k^2 + 63k^3$

Difficulty: Easy
Jerome - Chapter 02A... #8
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents
Source: Student text
Topic: Algebra
Type: Word

9. Perform the operation indicated and collect like terms: $-5xy(2x^2 - xy - 3y^2)$

$-10x^3y + 5x^2y^2 + 15xy^3$

Difficulty: Easy

Jerome - Chapter 02A... #9
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents
Source: Student text
Topic: Algebra
Type: Word

10. Perform the operation indicated and collect like terms: $(3p^2 - 5p)(-4p + 2)$

$-12p^3 + 26p^2 - 10p$

Difficulty: Easy
Gradable: manual
Jerome - Chapter 02A... #10
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents
Source: Student text
Topic: Algebra
Type: Word

11. Perform the operation indicated and collect like terms: $3(a - 2)(4a + 1) - 5(2a + 3)(a - 7)$

$2a^2 + 34a + 99$

Difficulty: Easy
Jerome - Chapter 02A... #11
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents
Source: Student text
Topic: Algebra
Type: Word

12. Perform the operation indicated and collect like terms: $5(2x - y)(y + 3x) - 6x(x - 5y)$

$24x^2 + 25xy - 5y^2$

Difficulty: Easy
Jerome - Chapter 02A... #12
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents
Source: Student text
Topic: Algebra
Type: Word

13. Perform operations and gather like terms: $6(4y - 3)(2 - 3y) - 3(5 - y)(1 + 4y)$

$-60y^2 + 45y - 51$

Difficulty: Easy
Jerome - Chapter 02A... #13
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents
Source: Student text
Topic: Algebra
Type: Word

14. Multiply and collect like terms: $4(3a + 2b)(2b - a) - 5a(2a - b)$

$-22a^2 + 21ab + 16b^2$

Difficulty: Easy
Jerome - Chapter 02A... #14
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents
Source: Student text
Topic: Algebra
Type: Word

15. Perform the operation indicated and collect like terms: $\frac{18x^2}{3x}$

6x

Difficulty: Easy
Jerome - Chapter 02A... #15
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents
Source: Student text
Topic: Algebra
Type: Word

16. Perform the operation indicated and collect like terms: $\frac{6a^2b}{-2ab^2}$

$\frac{-3a}{b}$

Difficulty: Easy
Jerome - Chapter 02A... #16
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents
Source: Student text
Topic: Algebra
Type: Word

17. Perform the operation indicated and collect like terms: $\frac{x^2y - xy^2}{xy}$

x - y

Difficulty: Easy

Jerome - Chapter 02A... #17

Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents

Source: Student text

Topic: Algebra

Type: Word

18. Perform the operation indicated and collect like terms: $\dfrac{-4x+10x^2-6x^3}{-0.5x}$

8 - 20x + 12x^2

Difficulty: Easy

Jerome - Chapter 02A... #18

Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents

Source: Student text

Topic: Algebra

Type: Word

19. Perform the operation indicated and collect like terms: $\dfrac{12x^3-24x^2+36x}{48x}$

$$\frac{x^2-2x+3}{4}$$

Difficulty: Easy

Jerome - Chapter 02A... #19

Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents

Source: Student text

Topic: Algebra

Type: Word

20. Perform operations and gather like terms: $\frac{5b-4}{4}-\frac{25-b}{1.25}+\frac{7}{8}b$

2.925b - 21

Difficulty: Medium
Jerome - Chapter 02A... #20
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents
Source: Student text
Topic: Algebra
Type: Word

21. Perform operations and gather like terms: $\frac{96nm^2-72n^2m^2}{48n^2m}$

$$\frac{96nm^2-72n^2m^2}{48n^2m}=\frac{4m-3nm}{2n}=\frac{4m}{2n}-\frac{3nm}{2n}=2\frac{m}{n}-1.5m$$

Difficulty: Easy
Jerome - Chapter 02A... #21
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents
Source: Student text
Topic: Algebra
Type: Word

22. Simplify: $a^2 \times a^3$

a^5

Difficulty: Easy
Jerome - Chapter 02A... #22

Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable
Source: Student text
Topic: Algebra
Type: Word

23. Simplify: $\left(x^{6}\right)\left(x^{-4}\right)$

x^2

Difficulty: Easy
Jerome - Chapter 02A... #23
Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable
Source: Student text
Topic: Algebra
Type: Word

24. Simplify: $b^{10} \div b^{6}$

b^4

Difficulty: Easy
Jerome - Chapter 02A... #24
Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable
Source: Student text
Topic: Algebra
Type: Word

25. Simplify: $h^{7} \div h^{-4}$

h^{11}

Difficulty: Easy

Jerome - Chapter 02A... #25

Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable

Source: Student text

Topic: Algebra

Type: Word

26. Simplify: $(1+i)^4 \times (1+i)^9$

$(1+i)^{13}$

Difficulty: Easy

Jerome - Chapter 02A... #26

Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable

Source: Student text

Topic: Algebra

Type: Word

27. Simplify: $(1+i)\times(1+i)^n$

$(1+i)^{n+1}$

Difficulty: Easy

Jerome - Chapter 02A... #27

Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable

Source: Student text

Topic: Algebra

Type: Word

28. Simplify: $\left(x^4\right)^7$

x^{28}

Difficulty: Easy
Gradable: manual
Jerome - Chapter 02A... #28
Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable
Source: Student text
Topic: Algebra
Type: Word

29. Simplify: $\left(y^3\right)^3$

y^9

Difficulty: Easy
Jerome - Chapter 02A... #29
Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable
Source: Student text
Topic: Algebra
Type: Word

30. Simplify: $\left(t^6\right)^{1/3}$

t^2

Difficulty: Easy
Jerome - Chapter 02A... #30
Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable
Source: Student text

Topic: Algebra

Type: Word

31. Simplify: $\left(n^{0.5}\right)^{8}$

n^4

Difficulty: Easy

Jerome - Chapter 02A... #31

Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable

Source: Student text

Topic: Algebra

Type: Word

32. Simplify: $\frac{\left(x^5\right)\left(x^6\right)}{x^9}$

x^2

Difficulty: Easy

Jerome - Chapter 02A... #32

Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable

Source: Student text

Topic: Algebra

Type: Word

33. Simplify: $\frac{(x^5)^6}{x^9}$

x^{21}

Difficulty: Easy

Jerome - Chapter 02A... #33

Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable

Source: Student text

Topic: Algebra

Type: Word

34. Simplify: $[2(1+i)]^2$

$4(1+i)^2$

Difficulty: Easy

Jerome - Chapter 02A... #34

Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable

Source: Student text

Topic: Algebra

Type: Word

35. Simplify: $\frac{9y-7}{3} - 2.3(y-2)$

0.7y + 2.2 $\overline{6}$

Difficulty: Medium

Jerome - Chapter 02A... #35

Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents

Source: Student text

Topic: Algebra

Type: Word

36. Simplify and collect like terms: $\frac{2x+9}{4} - 1.2(x-1)$

-0.7x + 3.45

Difficulty: Medium
Jerome - Chapter 02A... #36
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents
Source: Student text
Topic: Algebra
Type: Word

37. Simplify and collect like terms: $\frac{x}{2} - x^2 + \frac{4}{5} - 0.2x^2 - \frac{4}{5}x + \frac{1}{2}$

$-1.2x^2 - 0.3x + 1.3$

Difficulty: Medium
Jerome - Chapter 02A... #37
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents
Source: Student text
Topic: Algebra
Type: Word

38. Simplify and collect like terms: $\frac{8x}{0.5} + \frac{5.5x}{11} + 0.5(4.6x - 17)$

18.8x - 8.5

Difficulty: Medium
Jerome - Chapter 02A... #38
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents
Source: Student text

Topic: Algebra

Type: Word

39. Simplify and collect like terms: $\frac{2x}{1.045} - \frac{2.016x}{3} + \frac{x}{2}$

1.7419x

Difficulty: Medium

Jerome - Chapter 02A... #39

Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents

Source: Student text

Topic: Algebra

Type: Word

40. Perform the operation indicated and collect like terms: $\frac{120(1+i)^2 + 180(1+i)^3}{360(1+i)}$

$$\frac{2(1+i)+3(1+i)^2}{6}$$

Difficulty: Medium

Jerome - Chapter 02A... #40

Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents

Source: Student text

Topic: Algebra

Type: Word

41. Simplify: $\left(\frac{1+i}{3i}\right)^3$

$\frac{(1+i)^3}{27i^3}$

Difficulty: Medium

Jerome - Chapter 02A... #41

Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable

Source: Student text

Topic: Algebra

Type: Word

42. Simplify: $\frac{4r^5t^6}{\left(2r^2t\right)^3}$

$\frac{t^3}{2r}$

Difficulty: Medium

Jerome - Chapter 02A... #42

Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable

Source: Student text

Topic: Algebra

Type: Word

43. Simplify: $\frac{\left(-r^3\right)(2r)^4}{\left(2r^{-2}\right)^2}$

$-4r^{11}$

Difficulty: Medium
Jerome - Chapter 02A... #43
Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable
Source: Student text
Topic: Algebra
Type: Word

44. Evaluate to six-figure accuracy: $(1.0075)^{24}$

1.196414

Difficulty: Easy
Jerome - Chapter 02A... #44
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents
Source: Student text
Topic: Algebra
Type: Word

45. Evaluate: $3d^2 - 4d + 15$ for $d = 2.5$

23.75

Difficulty: Easy
Jerome - Chapter 02A... #45
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents
Source: Student text

Topic: Algebra

Type: Word

46. Evaluate: $15g - 9h + 3$ for $g = 14$, $h = 15$

78

Difficulty: Easy

Jerome - Chapter 02A... #46

Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents

Source: Student text

Topic: Algebra

Type: Word

47. Evaluate: $7x(4y - 8)$ for $x = 3.2$, $y = 1.5$

-44.8

Difficulty: Easy

Jerome - Chapter 02A... #47

Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents

Source: Student text

Topic: Algebra

Type: Word

48. Evaluate: $I \div Pr$ for $P = \$500$, $I = \$13.75$, $r = 0.11$

0.250

Difficulty: Easy

Jerome - Chapter 02A... #48

Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents

Source: Student text

Topic: Algebra

Type: Word

49. Evaluate and calculate to the cent: $\frac{N}{1-d}$ for N = \$89.10, d = 0.10

\$99.00

Difficulty: Easy

Jerome - Chapter 02A... #49

Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents

Source: Student text

Topic: Algebra

Type: Word

50. Evaluate and calculate to the cent: $P(1+rt)$ for P = \$770, r = 0.013, $t = \frac{223}{365}$

\$776.12

Difficulty: Easy

Jerome - Chapter 02A... #50

Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents

Source: Student text

Topic: Algebra

Type: Word

51. Evaluate and calculate to the cent: $\frac{S}{1+rt}$ for S = \$2,500, r = 0.085, $t = \frac{123}{365}$

\$2,430.38

Difficulty: Easy

Jerome - Chapter 02A... #51
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents
Source: Student text
Topic: Algebra
Type: Word

52. Evaluate to six-figure accuracy: $(1.05)^{1/6} - 1$

0.00816485

Difficulty: Easy
Jerome - Chapter 02A... #52
Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable
Source: Student text
Topic: Algebra
Type: Word

53. Evaluate to six-figure accuracy: $\dfrac{(1+0.0075)^{36} - 1}{0.0075}$

41.1527

Difficulty: Easy
Jerome - Chapter 02A... #53
Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable
Source: Student text
Topic: Algebra
Type: Word

54. Evaluate to six-figure accuracy: $\frac{\left(1.00\overline{6}\right)^{240}-1}{0.00\overline{6}}$

589.020

Difficulty: Easy
Jerome - Chapter 02A... #54
Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable
Source: Student text
Topic: Algebra
Type: Word

55. Evaluate to six-figure accuracy: $(1+0.025)^{1/3}-1$

0.00826484

Difficulty: Easy
Jerome - Chapter 02A... #55
Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable
Source: Student text
Topic: Algebra
Type: Word

56. Evaluate and calculate to the cent: $P(1+i)^n$ for P = \$1,280, i = 0.025, n = 3

\$1,378.42

Difficulty: Easy
Jerome - Chapter 02A... #56
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents
Source: Student text

Topic: Algebra

Type: Word

57. Evaluate and calculate to the cent: $\frac{S}{(1+i)^n}$ for S = \$850, i = 0.0075. n = 6

\$812.73

Difficulty: Easy

Jerome - Chapter 02A... #57

Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents

Source: Student text

Topic: Algebra

Type: Word

58. Evaluate accurate to the cent: $L(1-d_1)(1-d_2)(1-d_3)$ for L = \$340, $d_1 = 0.15,\ d_2 = 0.08,\ d_3 = 0.05$

\$252.59

Difficulty: Easy

Jerome - Chapter 02A... #58

Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable

Source: Student text

Topic: Algebra

Type: Word

59. Evaluate accurate to the cent: $\frac{R}{i}\left[1-\frac{1}{(1+i)^n}\right]$ for R = \$575, i = 0.085, n = 3

\$1468.56

Difficulty: Easy
Jerome - Chapter 02A... #59
Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable
Source: Student text
Topic: Algebra
Type: Word

60. Evaluate to six-figure accuracy: $8^{4/3}$

16

Difficulty: Easy
Jerome - Chapter 02A... #60
Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable
Source: Student text
Topic: Algebra
Type: Word

61. Evaluate to six-figure accuracy: $\left(-27^{2/3}\right)$

-9

Difficulty: Easy
Jerome - Chapter 02A... #61
Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable
Source: Student text

Topic: Algebra

Type: Word

62. Evaluate to six-figure accuracy: $5^{-3/4}$

0.299070

Difficulty: Easy

Gradable: manual

Jerome - Chapter 02A... #62

Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable

Source: Student text

Topic: Algebra

Type: Word

63. Evaluate to six-figure accuracy: $(0.001)^{-2}$

1,000,000

Difficulty: Easy

Jerome - Chapter 02A... #63

Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable

Source: Student text

Topic: Algebra

Type: Word

64. Evaluate to six-figure accuracy: $0.893^{-1/2}$

1.05822

Difficulty: Easy

Gradable: manual

Jerome - Chapter 02A... #64
Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable
Source: Student text
Topic: Algebra
Type: Word

65. Evaluate to six-figure accuracy: $(1.0085)^5(1.0085)^3$

1.07006

Difficulty: Easy
Jerome - Chapter 02A... #65
Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable
Source: Student text
Topic: Algebra
Type: Word

66. Evaluate to six-figure accuracy: $(1.0085)^5(1.0085)^3$

0.985149

Difficulty: Easy
Jerome - Chapter 02A... #66
Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable
Source: Student text
Topic: Algebra
Type: Word

67. Evaluate to six-figure accuracy: $(1+0.055)^{1/6}-1$

0.00896339

Difficulty: Easy
Jerome - Chapter 02A... #67
Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable
Source: Student text
Topic: Algebra
Type: Word

68. Evaluate to six-figure accuracy: $\sqrt[3]{1.03}$

1.00990

Difficulty: Easy
Jerome - Chapter 02A... #68
Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable
Source: Student text
Topic: Algebra
Type: Word

69. Evaluate to six-figure accuracy: $\sqrt[6]{1.05}$

1.00816

Difficulty: Easy
Jerome - Chapter 02A... #69
Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable
Source: Student text
Topic: Algebra
Type: Word

70. Evaluate to six-figure accuracy: $\left[\left(-\frac{3}{4}\right)^2\right]^{-2}$

3.16049

Difficulty: Medium
Jerome - Chapter 02A... #70
Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable
Source: Student text
Topic: Algebra
Type: Word

71. Evaluate to six-figure accuracy: $\left(\frac{2}{3}\right)^3\left(-\frac{3}{2}\right)^2\left(-\frac{3}{2}\right)^{-3}$

-0.197531

Difficulty: Medium
Jerome - Chapter 02A... #71
Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable
Source: Student text
Topic: Algebra
Type: Word

72. Evaluate to six-figure accuracy: $\frac{1-1.0225^{-20}}{0.0225}$

15.9637

Difficulty: Medium

Jerome - Chapter 02A... #72
Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable
Source: Student text
Topic: Algebra
Type: Word

73. Evaluate to six-figure accuracy: $\frac{1.03^{16} - 1}{0.03}$

20.1569

Difficulty: Medium
Gradable: manual
Jerome - Chapter 02A... #73
Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable
Source: Student text
Topic: Algebra
Type: Word

74. Evaluate and calculate to the cent: $R\left[\frac{(1+i)^n - 1}{i}\right]$ for R = \$550, i = 0.085, n = 3

\$1,794.22

Difficulty: Medium
Jerome - Chapter 02A... #74
Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable
Source: Student text
Topic: Algebra
Type: Word

75. Evaluate and calculate to the cent: $R\left[\frac{(1+i)^n - 1}{i}\right](1+i)$ for R = \$910, i = 0.1038129, n = 4

\$4687.97

Difficulty: Medium
Jerome - Chapter 02A... #75
Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable
Source: Student text
Topic: Algebra
Type: Word

76. Evaluate and calculate to the cent: $R\left[\frac{(1+i)^n - 1}{i}\right](1+i)$ for R = \$630, i = 0.115, n = 2

\$1,071.77
\$4,505.14

Difficulty: Medium
Jerome - Chapter 02A... #76
Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable
Source: Student text
Topic: Algebra
Type: Word

77. Simplify: $\dfrac{\left(-3x^2\right)^3\left(2x^{-2}\right)}{6x^5}$

$-\dfrac{9}{x}$

Difficulty: Medium
Jerome - Chapter 02A... #77
Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable
Source: Student text
Topic: Algebra
Type: Word

78. Solve: $\frac{1}{3}(x - 2) = 4$

x = 14

Difficulty: Easy
Jerome - Chapter 02A... #78
Learning Objective: 02-03 Solve a linear equation in one variable; and two linear equations in two variables
Source: Student text
Topic: Algebra
Type: Word

79. Solve: $y = 192 + 0.04y$

y = 200

Difficulty: Easy
Jerome - Chapter 02A... #79
Learning Objective: 02-03 Solve a linear equation in one variable; and two linear equations in two variables
Source: Student text

Topic: Algebra

Type: Word

80. Solve: $x - 0.025x = 341.25$

x = 350

Difficulty: Easy

Jerome - Chapter 02A... #80

Learning Objective: 02-03 Solve a linear equation in one variable; and two linear equations in two variables

Source: Student text

Topic: Algebra

Type: Word

81. Solve: $12x - 4(2x - 1) = 6(x + 1) - 3$

x = 0.5

Difficulty: Easy

Jerome - Chapter 02A... #81

Learning Objective: 02-03 Solve a linear equation in one variable; and two linear equations in two variables

Source: Student text

Topic: Algebra

Type: Word

82. Solve: $3y - 4 = 3(y + 6) - 2(y + 3)$

y = 8

Difficulty: Easy

Jerome - Chapter 02A... #82

Learning Objective: 02-03 Solve a linear equation in one variable; and two linear equations in two variables

Source: Student text

Topic: Algebra

Type: Word

83. Solve: $8 - 0.5(x + 3) = 0.25(x - 1)$

x = 9

Difficulty: Easy

Jerome - Chapter 02A... #83

Learning Objective: 02-03 Solve a linear equation in one variable; and two linear equations in two variables

Source: Student text

Topic: Algebra

Type: Word

84. Solve: $5(2 - c) = 10(2c - 4) - 6(3c + 1)$

c = 8

Difficulty: Easy

Jerome - Chapter 02A... #84

Learning Objective: 02-03 Solve a linear equation in one variable; and two linear equations in two variables

Source: Student text

Topic: Algebra

Type: Word

85. Solve the following pair of equations. Verify your solution. $x - y = 2$ $3x + 4y = 20$

(4, 2)

Difficulty: Easy

Gradable: manual

Jerome - Chapter 02A... #85

Learning Objective: 02-03 Solve a linear equation in one variable; and two linear equations in two variables

Source: Student text

Topic: Algebra

Type: Word

86. Solve the following pair of equations. Verify your solution. $y - 3x = 11$ $5x + 30 = 4y$

x = -2, y = 5

Difficulty: Easy

Jerome - Chapter 02A... #86

Learning Objective: 02-03 Solve a linear equation in one variable; and two linear equations in two variables

Source: Student text

Topic: Algebra

Type: Word

87. Solve the following pair of equations. Verify your solution. $7p - 3q = 23$ $-2p - 3q = 5$

p = 2, q = -3

Difficulty: Easy

Jerome - Chapter 02A... #87

Learning Objective: 02-03 Solve a linear equation in one variable; and two linear equations in two variables

Source: Student text

Topic: Algebra

Type: Word

88. Solve the following pair of equations. Verify your solution. $y = 2x$ $7x - y = 35$

x = 7, y = 14

Difficulty: Easy

Jerome - Chapter 02A... #88

Learning Objective: 02-03 Solve a linear equation in one variable; and two linear equations in two variables

Source: Student text

Topic: Algebra

Type: Word

89. Solve each of the following pairs of equations to three-figure accuracy.

a) $4a - 5b = 30$
$2a - 6b = 22$

b) $76x - 29y = 1050$
$-213x - 63y = 250$

a) (5.00, -2.00); b) (11.4, -6.32)

Difficulty: Medium

Jerome - Chapter 02A... #89

Learning Objective: 02-03 Solve a linear equation in one variable; and two linear equations in two variables

Source: Student text

Topic: Algebra

Type: Word

90. Solve for x to five-figure accuracy: $\frac{x}{1.08^3} + \frac{x}{2}(1.08)^4 = \$850$

$576.63

Difficulty: Medium

Jerome - Chapter 02A... #90

Learning Objective: 02-03 Solve a linear equation in one variable; and two linear equations in two variables

Source: Student text

Topic: Algebra

Type: Word

91. Solve for x to five-figure accuracy: $2x\left(1+0.085\times\frac{77}{365}\right)+\frac{x}{\left(1+0.085\times\frac{132}{365}\right)}=\$1565.70$

$520.85

Difficulty: Medium

Jerome - Chapter 02A... #91

Learning Objective: 02-03 Solve a linear equation in one variable; and two linear equations in two variables

Source: Student text

Topic: Algebra

Type: Word

92. Solve for x to five-figure accuracy: $\frac{2x}{1+0.13\times\frac{92}{365}}+x\left(1+0.13\times\frac{59}{365}\right)=\$831$

$280.97

Difficulty: Medium

Jerome - Chapter 02A... #92

Learning Objective: 02-03 Solve a linear equation in one variable; and two linear equations in two variables

Source: Student text

Topic: Algebra

Type: Word

93. Solve for x to five-figure accuracy: $3x\left(1.03^5\right)+\frac{x}{1.03^3}+x=\frac{\$2500}{1.03^2}$

$436.96

Difficulty: Medium

Jerome - Chapter 02A... #93

Learning Objective: 02-03 Solve a linear equation in one variable; and two linear equations in two variables

Source: Student text

Topic: Algebra

Type: Word

94. Solve accurate to the cent: $\frac{x}{1.1^2} + 2x(1.1)^3 = \$1000$

x = $286.66

Difficulty: Medium

Jerome - Chapter 02A... #94

Learning Objective: 02-03 Solve a linear equation in one variable; and two linear equations in two variables

Source: Student text

Topic: Algebra

Type: Word

95. Solve accurate to the cent: $\frac{3x}{1.025^6} + x(1.025)^8 = \$2641.35$

x = $694.13

Difficulty: Medium

Jerome - Chapter 02A... #95

Learning Objective: 02-03 Solve a linear equation in one variable; and two linear equations in two variables

Source: Student text

Topic: Algebra

Type: Word

96.

Solve the following pair of equations. Verify your solution. Round final answers to two decimals.

$-3c + d = -550$

$0.7c + 0.2d = 550$

(507.69, 973.08)

Difficulty: Medium
Gradable: manual
Jerome - Chapter 02A... #96
Learning Objective: 02-03 Solve a linear equation in one variable; and two linear equations in two variables
Source: Student text
Topic: Algebra
Type: Word

97. Solve the following pair of equations. Verify your solution. $0.03x + 0.05y = 51$ $0.8x - 0.7y = 140$

(700, 600)

Difficulty: Medium
Jerome - Chapter 02A... #97
Learning Objective: 02-03 Solve a linear equation in one variable; and two linear equations in two variables
Source: Student text
Topic: Algebra
Type: Word

98. Solve the following pair of equations. Verify your solution. $2v + 6w = 1$ -9w + 10v = 18

$$\left(\frac{3}{2}, -\frac{1}{3}\right)$$

Difficulty: Medium
Jerome - Chapter 02A... #98
Learning Objective: 02-03 Solve a linear equation in one variable; and two linear equations in two variables
Source: Student text
Topic: Algebra
Type: Word

99. Solve the following pair of equations. Verify your solution. $2.5a + 2b = 11$ $8a + 3.5b = 13$

(-1.72, 7.66)

Difficulty: Medium
Jerome - Chapter 02A... #99
Learning Objective: 02-03 Solve a linear equation in one variable; and two linear equations in two variables
Source: Student text
Topic: Algebra
Type: Word

100. Solve the following pair of equations. Verify your solution. $37x - 63y = 235$ $18x + 26y = 468$

(17.0, 6.24)

Difficulty: Medium
Jerome - Chapter 02A... #100
Learning Objective: 02-03 Solve a linear equation in one variable; and two linear equations in two variables
Source: Student text
Topic: Algebra

Type: Word

101. Solve the following pair of equations. Verify your solution. $68.9n - 38.5m = 57$ $45.1n - 79.4m = -658$

(12.8, 8.00)

Difficulty: Medium
Jerome - Chapter 02A... #101
Learning Objective: 02-03 Solve a linear equation in one variable; and two linear equations in two variables
Source: Student text
Topic: Algebra
Type: Word

102. Solve the following pair of equations. Verify your solution.

$3x + 5y = 11$
$2x - y = 16$

(7, -2)

Difficulty: Medium
Jerome - Chapter 02A... #102
Learning Objective: 02-03 Solve a linear equation in one variable; and two linear equations in two variables
Source: Student text
Topic: Algebra
Type: Word

103. Solve accurate to the cent: $\frac{2x}{1.03^7} + x + x\left(1.03^{10}\right) = \$1000 + \frac{\$2000}{1.03^4}$

x = $699.47

Difficulty: Hard

Jerome - Chapter 02A... #103

Learning Objective: 02-03 Solve a linear equation in one variable; and two linear equations in two variables

Source: Student text

Topic: Algebra

Type: Word

104. Solve accurate to the cent: $x(1.05)^3 + \$1000 + \frac{x}{1.05^7} = \frac{\$5000}{1.05^2}$

x = $1892.17

Difficulty: Hard

Jerome - Chapter 02A... #104

Learning Objective: 02-03 Solve a linear equation in one variable; and two linear equations in two variables

Source: Student text

Topic: Algebra

Type: Word

105. Solve accurate to the cent: $x\left(1 + 0.095 \times \frac{84}{365}\right) + \frac{2x}{\left(1 + 0.095 \times \frac{108}{365}\right)} = \$1160.20$

x = $391.01

Difficulty: Hard

Jerome - Chapter 02A... #105

Learning Objective: 02-03 Solve a linear equation in one variable; and two linear equations in two variables

Source: Student text

Topic: Algebra

Type: Word

106. Graph the following equation: $-2x + y = 0$ over the range $x = -3$ to $x = 6$

(-3, -6), (0, 0), (6, 12)

Difficulty: Easy

Jerome - Chapter 02A... #106

Learning Objective: 02-04 Graph a linear equation in two variables

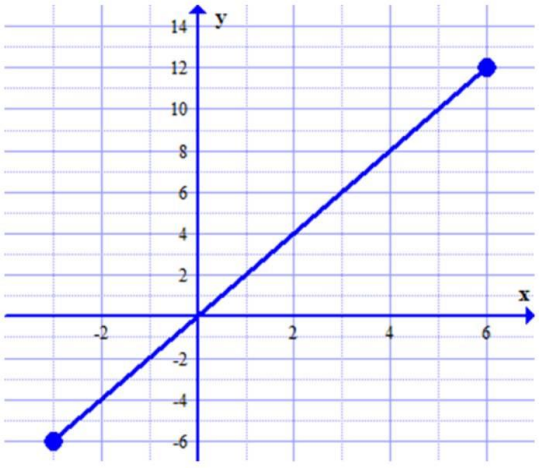
Source: Student text

Topic: Algebra

Type: Word

107. Graph following equations: $3x - 4y + 12 = 0$ over the range $x = -8$ to $x = 12$

(-8, -3), (0, 3), (12, 12)



Difficulty: Easy

Jerome - Chapter 02A... #107

Learning Objective: 02-04 Graph a linear equation in two variables

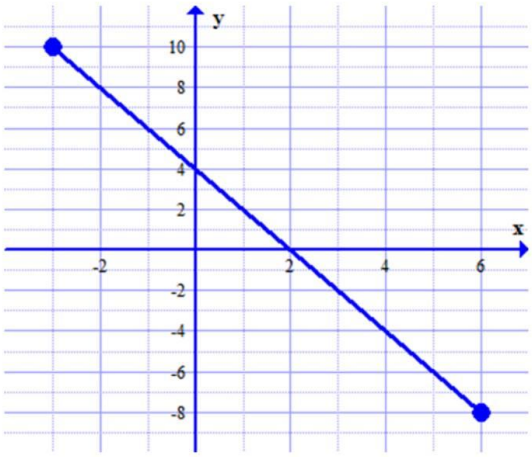
Source: Student text

Topic: Algebra

Type: Word

108. Graph following equations: $2x + y = 4$ over the range $x = -3$ to $x = 6$

(-3, 10), (0, 4), (6, -8)



Difficulty: Easy

Jerome - Chapter 02A... #108

Learning Objective: 02-04 Graph a linear equation in two variables

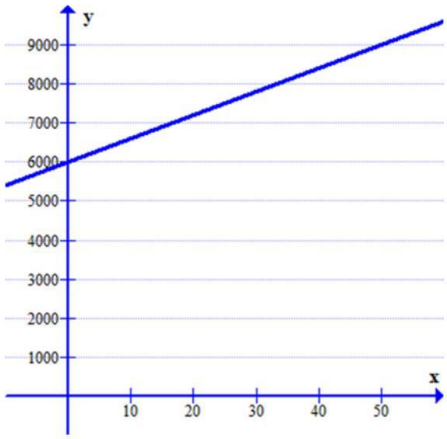
Source: Student text

Topic: Algebra

Type: Word

109. Graph the following equations: $y = 60x + 6{,}000$ over the range $x = 0$ to $x = 50$

(0, 6,000), (25, 7500), (50, 9,000)



Difficulty: Easy

Jerome - Chapter 02A... #109

Learning Objective: 02-04 Graph a linear equation in two variables

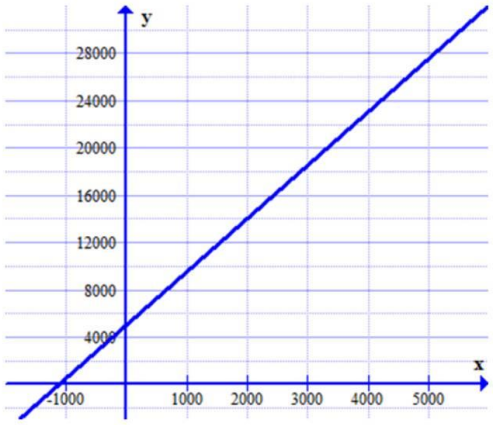
Source: Student text

Topic: Algebra

Type: Word

110. Graph the following equations: $y = 4.5x + 5{,}000$ over the range $x = 0$ to $x = 6{,}000$

(0, 5,000), (3,000, 18,500), (6,000, 32,000)



Difficulty: Easy
Jerome - Chapter 02A... #110
Learning Objective: 02-04 Graph a linear equation in two variables
Source: Student text
Topic: Algebra
Type: Word

111. Determine the slope and y-intercept of each of the following equations.

a) $2x = 3y + 4$
b) $8 - 3x = 2y$
c) $8x - 2y - 3 = 0$
d) $6x = 9y$

a) slope = $2/3$; intercept = $-4/3$; b) slope = $-3/2$; intercept = 4; c) slope = 4; intercept = $-3/2$; d) slope = $-7/8$; intercept = 0

Difficulty: Easy

Jerome - Chapter 02A... #111
Learning Objective: 02-05 Express a linear equation in slope intercept form
Source: Student text
Topic: Algebra
Type: Word

112. A plumber charges a flat $100 for a home service call plus $20 per 15 minutes of labour. Write an equation for calculating the total charges, *C*, in terms of the hours of labour, *H*. If you were to plot a graph of *C* vs. *H*, what would be the slope and *C*-intercept of the line?

C = $80H + $100; slope = $80; intercept = $100

Difficulty: Easy
Jerome - Chapter 02A... #112
Learning Objective: 02-05 Express a linear equation in slope intercept form
Source: Student text
Topic: Algebra
Type: Word

113. In his sales job, Ehud earns a base salary of $1500 per month plus a commission of 5% on sales revenue. Write an equation for calculating his gross earnings, *E*, for a month in terms of his sales revenue, *R*. If you were to plot a graph of *E* vs. *R*, what would be the slope and *E*-intercept of the line?

E = 0.05R + $1500; slope = 0.05; intercept = $1,500

Difficulty: Easy
Jerome - Chapter 02A... #113
Learning Objective: 02-05 Express a linear equation in slope intercept form
Source: Student text
Topic: Algebra
Type: Word

114. The formula for converting from Celsius temperatures, *C*, to Fahrenheit temperatures, *F*, is $F = \frac{9}{5} C + 32$.

a) If you were to plot a graph of *F* vs. *C*, what would be the slope and *F*-intercept of the line?
b) The slope represents the change in *F* per unit change in *C*. Use the value of the slope to determine the increase in Fahrenheit temperature corresponding to a 10 Celsius-degree rise.
c) Rearrange the given formula to obtain a formula for converting from Fahrenheit temperatures to Celsius temperatures. What would be the slope and *C*-intercept if *C* vs. *F* were plotted on a graph?

a) Slope = $9/5$; intercept = 32; b) 18F; c) slope = $5/9$; intercept = -17 $\frac{7}{9}$

Difficulty: Medium
Jerome - Chapter 02A... #114
Learning Objective: 02-05 Express a linear equation in slope intercept form
Source: Student text
Topic: Algebra
Type: Word

115. Use the graphical method to solve the following pair of equations.

$$x + y = 2$$
$$x = 5$$

(5,-3)

Difficulty: Easy
Jerome - Chapter 02A... #115
Learning Objective: 02-06 Solve two equations in two unknowns by a graphical method
Source: Student text
Topic: Algebra
Type: Word

116. Use the graphical method to solve the following pair of equations.

$$x - 3y = 3$$
$$y = -2$$

(-3,-2)

Difficulty: Easy
Jerome - Chapter 02A... #116
Learning Objective: 02-06 Solve two equations in two unknowns by a graphical method
Source: Student text
Topic: Algebra
Type: Word

117. Use the graphical method to solve the following pair of equations.

$$x + y = 4$$
$$2x - y = 8$$

(4, 0)

Difficulty: Easy
Jerome - Chapter 02A... #117
Learning Objective: 02-06 Solve two equations in two unknowns by a graphical method
Source: Student text
Topic: Algebra
Type: Word

118. Use the graphical method to solve the following pair of equations.

$$y - 3x = 11$$
$$5x + 30 = 4y$$

(-2, 5)

Difficulty: Easy
Jerome - Chapter 02A... #118
Learning Objective: 02-06 Solve two equations in two unknowns by a graphical method
Source: Student text
Topic: Algebra
Type: Word

119. A web site had 2/7 more hits last month than in the same month of the preceding year. If there were 2655 hits last month, how many were there 1 year earlier?

2,065

Difficulty: Easy
Jerome - Chapter 02A... #119
Learning Objective: 02-07 Solve "word problems" that lead to a linear equation in one unknown; or two linear equations in two unknowns
Source: Student text
Topic: Algebra
Type: Word

120. The retail price of a pair of skis consists of the wholesale cost to the retailer plus the retailer's markup. If skis retailing for $712 are marked up by 60% of the wholesale cost, what is that wholesale cost?

$445.00

Difficulty: Easy
Jerome - Chapter 02A... #120
Learning Objective: 02-07 Solve "word problems" that lead to a linear equation in one unknown; or two linear equations in two unknowns
Source: Student text
Topic: Algebra
Type: Word

121. The price tags in Annie's Flower Shop include the 13% Harmonized Sales Tax (HST). How much HST will she report for a plant sold at $39.95?

$4.60

Difficulty: Easy
Jerome - Chapter 02A... #121
Learning Objective: 02-07 Solve "word problems" that lead to a linear equation in one unknown; or two linear equations in two unknowns
Source: Student text
Topic: Algebra
Type: Word

122. A stockbroker's commission on a transaction is 2.5% of the first $5,000 of the transaction amount and 1.5% of the remainder. What was the amount of a transaction that generated a total commission of $227?

$11,800

Difficulty: Easy
Jerome - Chapter 02A... #122
Learning Objective: 02-07 Solve "word problems" that lead to a linear equation in one unknown; or two linear equations in two unknowns
Source: Student text
Topic: Algebra
Type: Word

123. A caterer has the following price structure for banquets. The first 20 meals are charged the basic price per meal. The next 20 meals are discounted by $2 each and all additional meals are each reduced by $3. If the total cost for 73 meals comes to $1686, what is the basic price per meal?

$25.00

Difficulty: Easy
Jerome - Chapter 02A... #123
Learning Objective: 02-07 Solve "word problems" that lead to a linear equation in one unknown; or two linear equations in two unknowns
Source: Student text
Topic: Algebra
Type: Word

124. The annual dues for the Southern Pines Golf Club are $2140 for regular members and $856 for student members. If the total revenue from the dues of 583 members for the past year was $942,028, how many members did the club have in each category?

238 student members and 345 regular members

Difficulty: Easy
Jerome - Chapter 02A... #124
Learning Objective: 02-07 Solve "word problems" that lead to a linear equation in one unknown; or two linear equations in two unknowns
Source: Student text
Topic: Algebra
Type: Word

125. Product X requires 30 minutes of machining on a lathe, and product Y requires 45 minutes of machining. If the lathe was operated for 60.5 hours last week for machining a combined total of 93 units of Products X and Y, how many units of each product were produced?

37 units of X and 56 units of Y

Difficulty: Easy
Jerome - Chapter 02A... #125
Learning Objective: 02-07 Solve "word problems" that lead to a linear equation in one unknown; or two linear equations in two unknowns
Source: Student text
Topic: Algebra
Type: Word

126. Mr. Parker structured his will so that each of his four children will receive half as much from the proceeds of his estate as his wife, and each of 13 grandchildren will receive one-third as much as each child. After his death, $759,000 remains after expenses and taxes for distribution among his heirs. How much will each child and grandchild receive?

each child = $73,451.62; each grandchild = $24,483.87

Difficulty: Medium
Jerome - Chapter 02A... #126
Learning Objective: 02-07 Solve "word problems" that lead to a linear equation in one unknown; or two linear equations in two unknowns
Source: Student text
Topic: Algebra
Type: Word

127. To coordinate production in a three-stage manufacturing process, Stage B must be assigned 60% more workers than Stage A. Stage C requires three-quarters as many workers as Stage B. How should the foreman allocate 114 workers among the three stages?

Stage A = 30; Stage B = 48; Stage C = 36

Difficulty: Medium
Jerome - Chapter 02A... #127
Learning Objective: 02-07 Solve "word problems" that lead to a linear equation in one unknown; or two linear equations in two unknowns
Source: Student text
Topic: Algebra
Type: Word

128. Econo Car offers two plans for one-week rentals of a compact car. A rate of $295 per week includes the first 1,000 kilometres. Extra distance costs 15 cents per kilometre. A weekly rate of $389 allows unlimited driving. Rounded to the nearest kilometre, beyond what driving distance is the unlimited driving plan cheaper?

1,627 km

Difficulty: Medium
Jerome - Chapter 02A... #128
Learning Objective: 02-07 Solve "word problems" that lead to a linear equation in one unknown; or two linear equations in two unknowns
Source: Student text
Topic: Algebra
Type: Word

129. Alicia pays 38% income tax on any additional earnings. She has an opportunity to work overtime at 1.5 times her base wage of $23.50 per hour. Rounded to the nearest quarter hour, how much overtime must she work to earn enough money (after tax) to buy a canoe that costs $2750 including sales taxes?

125¾ hours

Difficulty: Medium
Jerome - Chapter 02A... #129
Learning Objective: 02-07 Solve "word problems" that lead to a linear equation in one unknown; or two linear equations in two unknowns
Source: Student text
Topic: Algebra
Type: Word

130. A firm received a bill from its accountant for $3,310, representing a combined total of 41 "billable" hours for both the Certified General Accountant (CGA) and her accounting technician, for conducting the firm's audit. If the CGA charges her time at $120 per hour and the technician's time at $50 per hour, how many hours did each work on the audit?

CGA: 18 hours; technician: 23 hours

Difficulty: Medium
Jerome - Chapter 02A... #130
Learning Objective: 02-07 Solve "word problems" that lead to a linear equation in one unknown; or two linear equations in two unknowns
Source: Student text
Topic: Algebra
Type: Word

131. Joan, Stella, and Sue have agreed to form a partnership. For the original capital investment of $32,760, Sue agrees to contribute 20% more than Joan, and Joan agrees to contribute 20% more than Stella. How much will each contribute?

Stella = $9,000; Joan = $10,800; Sue = $12,960

Difficulty: Medium
Jerome - Chapter 02A... #131
Learning Objective: 02-07 Solve "word problems" that lead to a linear equation in one unknown; or two linear equations in two unknowns
Source: Student text
Topic: Algebra
Type: Word

132. The annual net income of the SGR partnership is to be distributed so that Sven receives 30% less than George, and Robert receives 25% more than George. If the past year's net income was $88,880, what amount should be allocated to each?

George = $30,128.81; Robert = $37,661.02; Sven = $21,090.17

Difficulty: Medium
Jerome - Chapter 02A... #132
Learning Objective: 02-07 Solve "word problems" that lead to a linear equation in one unknown; or two linear equations in two unknowns
Source: Student text
Topic: Algebra
Type: Word

133. It takes 20 minutes of machine time to manufacture Product X and 30 minutes of machine time to manufacture Product Y. If the machine operated 47 hours last week to produce a combined total of 120 units of the two products, how many units of Y were manufactured?

42

Difficulty: Medium
Jerome - Chapter 02A... #133
Learning Objective: 02-07 Solve "word problems" that lead to a linear equation in one unknown; or two linear equations in two unknowns
Source: Student text
Topic: Algebra
Type: Word

134. The tickets for a hockey game cost $19.00 for the blue LO and $25.50 for the red LO. If 4,460 tickets were sold for a total of $93,450, how many seats were sold in each LO?

blue = 3120; red = 1340

Difficulty: Medium
Jerome - Chapter 02A... #134
Learning Objective: 02-07 Solve "word problems" that lead to a linear equation in one unknown; or two linear equations in two unknowns
Source: Student text
Topic: Algebra
Type: Word

135. Regal Resources owns a 58% interest in a mineral claim. Yukon Explorations owns the remainder. If Regal sells one-fifth of its interest for $1.2 million, what is the implied value of Yukon's interest?

$4,344,828

Difficulty: Medium
Jerome - Chapter 02A... #135
Learning Objective: 02-07 Solve "word problems" that lead to a linear equation in one unknown; or two linear equations in two unknowns
Source: Student text
Topic: Algebra
Type: Word

136. The statistics for a professional accounting program indicate that five-sevenths of those who enter the program complete Level 1. Two-ninths of Level 1 completers do not finish Level 2. If 587 students completed Level 2 last year, how many (including this group of 587) began Level 1?

1,057

Difficulty: Medium
Gradable: manua
Jerome - Chapter 02A... #136
Learning Objective: 02-07 Solve "word problems" that lead to a linear equation in one unknown; or two linear equations in two unknowns
Source: Student text
Topic: Algebra
Type: Word

137. The profits from a partnership are to be distributed so that Grace receives 20% more than Kajsa, and Mary Anne receives five-eighths as much as Grace. How much should each receive from a total distribution of $36,000?

Kajsa receives $12,203.39; Grace receives $14,644.07; Mary Anne receives $9152.54

Difficulty: Medium
Jerome - Chapter 02A... #137
Learning Objective: 02-07 Solve "word problems" that lead to a linear equation in one unknown; or two linear equations in two unknowns
Source: Student text
Topic: Algebra
Type: Word

138. A hockey arena has 2500 seats in the preferred red LOs near centre ice and 4500 seats in the less desirable blue LOs. At regular season prices, a sell-out would generate ticket revenue of $50,250 for a single game. Ticket prices are raised by 20% in the "blues" and 30% in the "reds" for the playoffs. Ticket revenue from a playoff sell-out would be $62,400. What are the ticket prices for the playoffs?

$10.92 reds; $7.80 blues

Difficulty: Medium
Jerome - Chapter 02A... #138
Learning Objective: 02-07 Solve "word problems" that lead to a linear equation in one unknown; or two linear equations in two unknowns
Source: Student text
Topic: Algebra
Type: Word

139. Rory invested a total of $7,800 in shares of ABC Ltd. and XYZ Inc. One year later the investment was worth $9,310, after the shares of ABC had increased in value by 15% and the shares of XYZ were up 25%. How much did Rory invest in each company?

$3400 invested in XYZ; $4400 invested in ABC

Difficulty: Medium
Jerome - Chapter 02A... #139
Learning Objective: 02-07 Solve "word problems" that lead to a linear equation in one unknown; or two linear equations in two unknowns
Source: Student text
Topic: Algebra
Type: Word

140. Fred has centralized the purchasing and recordkeeping functions for his three pharmacies in a single office. The annual costs of the office are allocated to the three stores. The Hillside store is charged $1,000 less than twice the charge to the Barnett store. The Westside store is charged $2,000 more than the Hillside store. What is the charge to the Westside store if the cost of operating the central office for a year is $27,600?

$12,040

Difficulty: Medium
Jerome - Chapter 02A... #140
Learning Objective: 02-07 Solve "word problems" that lead to a linear equation in one unknown; or two linear equations in two unknowns
Source: Student text
Topic: Algebra
Type: Word

141. Classic Homes has found from experience that there should be 40% as many two-bedroom homes as three-bedroom homes in a subdivision, and twice as many two-bedroom homes as four-bedroom homes. How many homes of each type should Classic build in a new 96-home subdivision?

24 two-bedroom; 60 three-bedroom; 12 four-bedroom

Difficulty: Hard
Jerome - Chapter 02A... #141
Learning Objective: 02-07 Solve "word problems" that lead to a linear equation in one unknown; or two linear equations in two unknowns
Source: Student text
Topic: Algebra
Type: Word

142. Broadway Mazda usually spends half as much on radio advertising as on newspaper advertising, and 60% as much on television advertising as on radio advertising. If next year's total advertising budget is $160,000, how much (rounded to the nearest dollar) should be allocated to each form of advertising?

Radio: $44,444; TV: $26,667; Newspaper: $88,889

Difficulty: Hard
Gradable: manual
Jerome - Chapter 02A... #142
Learning Objective: 02-07 Solve "word problems" that lead to a linear equation in one unknown; or two linear equations in two unknowns
Source: Student text
Topic: Algebra
Type: Word

143. A city's commercial construction by-laws require five parking spaces for every 100 square metres of retail rental space in a shopping centre. Four percent of the parking spaces must be large spaces for the physically handicapped. Of the remainder, there must be 40% more regular-size spaces than "small-car" spaces. How many parking spaces of each type are required for a 27,500 square metre shopping centre?

55 handicapped; 550 small-car; 770 regular

Difficulty: Hard
Jerome - Chapter 02A... #143
Learning Objective: 02-07 Solve "word problems" that lead to a linear equation in one unknown; or two linear equations in two unknowns
Source: Student text
Topic: Algebra
Type: Word

144. Erin has invested in both an equity mutual fund and a bond mutual fund. Her financial advisor told her that her overall portfolio rose in value by 1.1% last year. Erin noted in the newspaper that the equity fund lost 3.3% last year while the bond fund rose 7.7%. To the nearest 0.1%, what percentage of her portfolio was in the equity fund at the beginning of the year?

60%

Difficulty: Hard
Jerome - Chapter 02A... #144
Learning Objective: 02-07 Solve "word problems" that lead to a linear equation in one unknown; or two linear equations in two unknowns
Source: Student text
Topic: Algebra
Type: Word

145. Steel is an alloy of iron and nickel. A steel recycling company has two piles of scrap steel. Pile A contains steel with 5.25% nickel content. Pile B contains steel with 2.84% nickel. The company has an order for 32.5 tonnes of steel containing 4.15% nickel. How much scrap steel should be taken from each pile for reprocessing?

17.67 tonnes from A; 14.83 tonnes from B

Difficulty: Hard
Jerome - Chapter 02A... #145
Learning Objective: 02-07 Solve "word problems" that lead to a linear equation in one unknown; or two linear equations in two unknowns
Source: Student text
Topic: Algebra
Type: Word

146. The board of directors of Meditronics Inc. has designated 100,000 stock options for distribution to employees and management of the company. Each of three executives is to receive 2,000 more options than each of eight scientists and engineers. Each scientist and engineer is to receive 50% more options than each of 14 technicians. How many options will a person in each position receive?

Technician: 3,082; Scientist: 4,623; Executive: 6,623

Difficulty: Hard
Jerome - Chapter 02A... #146
Learning Objective: 02-07 Solve "word problems" that lead to a linear equation in one unknown; or two linear equations in two unknowns
Source: Student text
Topic: Algebra
Type: Word

147. Quality Grocer makes its own bulk "trail mix" by mixing raisins and peanuts. The wholesale cost of raisins is $3.75 per kg and the cost of peanuts is $2.89 per kg. To the nearest 0.1 kg, what amounts of peanuts and raisins should be mixed to produce 50 kg of trail mix with an effective wholesale cost of $3.20 per kg?

Peanuts: 32.0 kg; Raisins 18.0 kg

Difficulty: Hard
Jerome - Chapter 02A... #147
Learning Objective: 02-07 Solve "word problems" that lead to a linear equation in one unknown; or two linear equations in two unknowns
Source: Student text
Topic: Algebra
Type: Word

148. Mr. and Mrs. Chudnowski paid $1,050 to fly with their three children from Winnipeg to Regina. Mrs. Ramsey paid $610 for herself and two children on the same flight. What were the airfares per adult and per child?

$270 adult; $170 child

Difficulty: Hard
Jerome - Chapter 02A... #148
Learning Objective: 02-07 Solve "word problems" that lead to a linear equation in one unknown; or two linear equations in two unknowns
Source: Student text
Topic: Algebra
Type: Word

149. Calculate the missing value: Initial Value = $95; Final Value = $100; Percent Change =?

5.26%

Difficulty: Easy
Jerome - Chapter 02A... #149
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

150. Calculate the missing value: Initial Value = 135kg; Final Value = 35kg; Percent Change =?

-74.07%

Difficulty: Easy
Jerome - Chapter 02A... #150
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text

Topic: Algebra
Type: Word

151. Calculate the missing value: Initial Value = 0.11; Final Value = 0.13; Percent Change =?

18.18%

Difficulty: Easy
Jerome - Chapter 02A... #151
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

152. Calculate the missing value: Initial Value = 0.095; Final Value = 0.085; Percent Change =?

-10.53%

Difficulty: Easy
Jerome - Chapter 02A... #152
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

153. Calculate the missing value: Initial Value = $134.39; Final Value =?; Percent Change = -12%

$118.26

Difficulty: Easy
Jerome - Chapter 02A... #153
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text

Topic: Algebra
Type: Word

154. Calculate the missing value: Initial Value = 112g; Final Value =?; Percent Change = 112%

237.44g

Difficulty: Easy
Jerome - Chapter 02A... #154
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

155. Calculate the missing value: Initial Value =?; Final Value = $75; Percent Change = 200%

$25.00

Difficulty: Easy
Jerome - Chapter 02A... #155
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

156. Calculate the missing value: Initial Value =?; Final Value = $75; Percent Change = -50%

$150.00

Difficulty: Easy
Jerome - Chapter 02A... #156
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text

Topic: Algebra
Type: Word

157. $100 is what percent more than $90?

11.11%

Difficulty: Easy
Jerome - Chapter 02A... #157
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

158. $100 is what percent less than $110?

-9.09%

Difficulty: Easy
Jerome - Chapter 02A... #158
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

159. What amount is 17.5% more than $29.43?

$34.58

Difficulty: Easy
Jerome - Chapter 02A... #159
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text

Topic: Algebra
Type: Word

160. What amount reduced by 80% leaves $100?

$500.00

Difficulty: Easy
Jerome - Chapter 02A... #160
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

161. What amount reduced by 15% equals $100?

$117.65

Difficulty: Easy
Jerome - Chapter 02A... #161
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

162. What is $47.50 increased by 320%?

$199.50

Difficulty: Easy
Jerome - Chapter 02A... #162
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text

Topic: Algebra
Type: Word

163. What amount when increased by 25% equals $100?

$80.00

Difficulty: Easy
Jerome - Chapter 02A... #163
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

164. $75 is 75% more than what amount?

$42.86

Difficulty: Easy
Jerome - Chapter 02A... #164
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

165. How much is $75 after an increase of 75%?

$131.25

Difficulty: Easy
Jerome - Chapter 02A... #165
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text

Topic: Algebra
Type: Word

166. What amount when decreased by 62% equals $213.56?

$562.00

Difficulty: Easy
Jerome - Chapter 02A... #166
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

167. What amount when increased by 125% equals $787.50?

$350.00

Difficulty: Easy
Jerome - Chapter 02A... #167
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

168. What amount is 30% less than $300?

$210.00

Difficulty: Easy
Jerome - Chapter 02A... #168
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text

Topic: Algebra
Type: Word

169. $100 is 10% less than what amount?

$111.11

Difficulty: Easy
Jerome - Chapter 02A... #169
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

170. What amount after a reduction of 20% equals $100?

$125.00

Difficulty: Easy
Jerome - Chapter 02A... #170
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

171. How much is $900 after a decrease of 90%?

$90.00

Difficulty: Easy
Jerome - Chapter 02A... #171
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text

Topic: Algebra
Type: Word

172. How much is $10,000 increased by ¾%?

$10,075.00

Difficulty: Easy
Jerome - Chapter 02A... #172
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

173. What amount after being increased by 210% equals $465?

$150.00

Difficulty: Easy
Jerome - Chapter 02A... #173
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

174. The total cost of a coat, including HST of 13% on the retail price, was $281.37. What is the retail price of the coat?

$249.00

Difficulty: Easy
Jerome - Chapter 02A... #174

Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

Becker Tools sold 32,400 hammers at an average price of $15.10 in Year 1 and 27,450 hammers at an average price of $15.50 in Year 2. What was the percent change from Year 1 to Year 2 in:

Jerome - Chapter 02A...

175. The number of hammers sold?

-15.28%

Difficulty: Easy
Jerome - Chapter 02A... #175
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

176. The average selling price?

2.65%

Difficulty: Easy
Jerome - Chapter 02A... #176
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

177. The revenue from the sale of hammers?

-13.03%

Difficulty: Easy
Jerome - Chapter 02A... #177
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

An investor purchased shares of Digger Resources at a price of $0.55 per share. One year later, the shares traded at $1.55, but they fell back to $0.75 by the end of the second year after the date of purchase. Calculate the percent change in the share price:

Jerome - Chapter 02A...

178. In the first year

181.82%

Difficulty: Easy
Jerome - Chapter 02A... #178
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

179. In the second year

-51.61%

Difficulty: Easy
Jerome - Chapter 02A... #179
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

180. Over both years

36.36%

Difficulty: Easy
Jerome - Chapter 02A... #180
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

181. Mountain Sports is advertising "30% Off All Skiing Equipment" in its Spring Clearance Sale. On ski boots marked down to $348.60, what is the regular price?

$498.00

Difficulty: Easy
Jerome - Chapter 02A... #181
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra

Type: Word

182. The price of the shares of Nadir Explorations Ltd. fell by 76% in the past year, to the current price of $0.45 per share. In dollars and cents, how much did the price of each share drop in the past year?

$1.43

Difficulty: Easy
Jerome - Chapter 02A... #182
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

183. Two years ago the shares of Diamond Strike Resources traded at a price of $3.40 per share. One year later the shares were at $11.50, but then they declined in value by 35% during the subsequent year. Calculate:

a) The percent change in the share price during the first year.
b) The current share price.

a) 238.24%; b) $7.48

Difficulty: Easy
Jerome - Chapter 02A... #183
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

184. Barry recently sold some stock after holding it for 2 years. The stock rose 150% in price during the first year but fell 40% in the second year. At what price did he buy the stock if he sold it for $24 per share?

$16.00

Difficulty: Easy
Jerome - Chapter 02A... #184
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

185. After Island Farms increased the container size for its premium ice cream from 1.65 L to 2.2 L, the retail price increased from $5.49 to $7.98. What was the percent change in the unit price?

9.02%

Difficulty: Medium
Jerome - Chapter 02A... #185
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

186. Mutual Fund A charges an annual management fee of 2.38% of money under management. The corresponding management fee for Mutual Fund B is 1.65%. On the same invested amount, what percentage more fees will you pay to Fund A than to Fund B?

44.24%

Difficulty: Medium
Jerome - Chapter 02A... #186
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

187. In January of 2008, the federal government reduced the GST rate from 6% to 5%. What was the resulting percent reduction in the dollar amount of GST consumers paid on any item?

-16.7%

Difficulty: Medium
Jerome - Chapter 02A... #187
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

188. The owner listed a property for 140% more than she paid for it 12 years ago. After receiving no offers during the first 3 months of market exposure, she dropped the list price by 10%, to $172,800. What was the original price that the owner paid for the property?

$80,000

Difficulty: Medium
Jerome - Chapter 02A... #188
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

189. A car dealer normally lists new cars at 22% above cost. A demonstrator model was sold for $17,568 after a 10% reduction from the list price. What amount did the dealer pay for this car?

$16,000

Difficulty: Medium
Jerome - Chapter 02A... #189
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

190. If the Canadian dollar is worth 1.5% less than the U.S. dollar, by what percentage does the U.S. dollar exceed the value of the Canadian dollar?

1.52% more than the Canadian dollar

Difficulty: Medium

Jerome - Chapter 02A... #190
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

191. Last year, Canada's exports to the U.S. exceeded imports from the U.S. by 9.62%. By what percentage were the United States' exports to Canada less than its imports from Canada?

8.78% less

Difficulty: Medium
Jerome - Chapter 02A... #191
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

192. Albion Distributors' revenues and expenses for the fiscal year just completed were $2,347,000 and $2,189,000, respectively.

a) If in the current year revenues rise by 10% but expense increases are held to 5%, what will be the percent increase in operating profit?
b) If, instead, revenues decline by 10% and expenses are reduced by 5%, what will be the percent change in operating profit?

a) 79.27%; b) -79.27%

Difficulty: Medium
Jerome - Chapter 02A... #192
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

193. The Hampton District school board decided to reduce the number of students per teacher next year by 15%. If the number of students does not change, by what percentage must the number of teachers be increased?

17.65%

Difficulty: Hard
Jerome - Chapter 02A... #193
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

194. The Lightning laser printer prints 30% more pages per minute than the Reliable laser printer. What percentage less time than the Reliable will the Lightning require for long print jobs?

23.08% less

Difficulty: Hard
Jerome - Chapter 02A... #194
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

195. If the euro is worth 32% more than the Canadian dollar, how much less (in percentage terms) is the Canadian dollar worth than the euro?

24.24 % less

Difficulty: Hard

Jerome - Chapter 02A... #195
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

196. A hospital can increase the dollar amount budgeted for nurses' overtime wages during the next year by only 3%. The nurses union has just won an 11% hourly rate increase for the next year. By what percentage must the hospital cut the number of overtime hours in order to stay within budget?

7.21%

Difficulty: Hard
Jerome - Chapter 02A... #196
Learning Objective: 02-08 Solve problems involving percent change
Source: Student text
Topic: Algebra
Type: Word

197. Simplify: $2a-(-a)+4a-5a$

$2a$

Difficulty: Easy
Jerome - Chapter 02A... #197
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents
Source: Test bank
Topic: Algebra
Type: Word

198. Simplify and collect like terms: $\left(7m^3 - m - 6m^2 + 10\right) - \left(5m^3 - 9 + 3m - 2m^2\right)$

$2m^3 - 4m^2 - 4m + 19$

Difficulty: Easy
Jerome - Chapter 02A... #198
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents
Source: Test bank
Topic: Algebra
Type: Word

199. Simplify and collect like terms: $2(7x - 3y) - 3(2x - 3y)$

$8x + 3y$

Difficulty: Easy
Jerome - Chapter 02A... #199
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents
Source: Test bank
Topic: Algebra
Type: Word

200. Simplify and collect like terms: $4(a^2 - 3a - 4) - 2(5a^2 - a - 6)$

$-6a^2 - 10a - 4$

Difficulty: Easy
Jerome - Chapter 02A... #200
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents
Source: Test bank
Topic: Algebra
Type: Word

201. Simplify and collect like terms: $15x - [4 - 2(5x - 6)]$

25x - 16

Difficulty: Easy
Jerome - Chapter 02A... #201
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents
Source: Test bank
Topic: Algebra
Type: Word

202. Simplify: $-4x - [-3x + 2(x - 6)]$

$-3x + 12$

Difficulty: Easy
Jerome - Chapter 02A... #202
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents
Source: Test bank
Topic: Algebra
Type: Word

203. Perform the operation indicated and collect like terms: $(4r - 3t)(2t + 5r)$

$20r^2 - 7rt - 6t^2$

Difficulty: Easy
Jerome - Chapter 02A... #203
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents
Source: Test bank
Topic: Algebra
Type: Word

204. Perform the operation indicated and collect like terms: $\frac{32a^2b - 8ab + 14ab^2}{2ab}$

16a - 4 + 7b

Difficulty: Easy
Jerome - Chapter 02A... #204
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents
Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable
Source: Test bank
Topic: Algebra
Type: Word

205. Perform the operation indicated and collect like terms: $-(p^2 - 4pq - 5p)\left(\frac{2q}{p}\right)$

$-2pq + 8q^2 + 10q$

Difficulty: Easy
Jerome - Chapter 02A... #205
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents
Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable
Source: Test bank
Topic: Algebra
Type: Word

206.

Perform the operation indicated and collect like terms: $\frac{4a^2b^3 - 6a^3b^2}{2ab^2}$

2ab - $3a^2$

Difficulty: Easy

Jerome - Chapter 02A... #206

Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents

Source: Test bank

Topic: Algebra

Type: Word

207.

Evaluate and calculate to the cent: $\frac{I}{rt}$ for $r = 0.095$, $I = \$23.21$, $t = \frac{283}{365}$

$315.11

Difficulty: Easy

Jerome - Chapter 02A... #207

Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents

Source: Test bank

Topic: Algebra

Type: Word

208. Simplify: $\left(\frac{3a^3b^2}{a-b}\right)^4$

$$\frac{81a^{12}b^8}{(a-b)^4}$$

Difficulty: Medium

Jerome - Chapter 02A... #208

Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents

Source: Test bank

Topic: Algebra

Type: Word

209. Simplify: $\left(\frac{3}{2x^2}\right)^2\left(\frac{6x^3}{5^2}\right)\left(-\frac{x}{5}\right)^{-1}$

$$-\frac{27}{10x^2}$$

Difficulty: Medium

Jerome - Chapter 02A... #209

Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents

Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable

Source: Test bank

Topic: Algebra

Type: Word

210. Simplify: $\dfrac{(-2y)^3\left(x^4\right)^{-2}}{\left(x^{-2}\right)^2(4y)^2}$

$-\dfrac{y}{2x^4}$

Difficulty: Medium

Jerome - Chapter 02A... #210

Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents

Source: Test bank

Topic: Algebra

Type: Word

211. Simplify: $P\left(1+0.095\times\dfrac{135}{365}\right)+\dfrac{2P}{\left(1+0.095\times\frac{75}{365}\right)}$

2.996843P

Difficulty: Medium

Jerome - Chapter 02A... #211

Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents

Source: Test bank

Topic: Algebra

Type: Word

212. Simplify: $\frac{(2x^4y^2z^3)^2}{4xyz^2}$

$x^7y^3z^4$

3.0509P

2.8685y

Difficulty: Hard

Difficulty: Medium

Jerome - Chapter 02A... #212

Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents

Source: Test bank

Topic: Algebra

Type: Word

213. Simplify and collect like terms: $k(1+0.04)^2+\frac{2k}{(1+0.04)^2}$

2.9307k

-2.6243h

Difficulty: Hard

Jerome - Chapter 02A... #213

Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents

Source: Test bank

Topic: Algebra

Type: Word

214. Simplify the following expression $\frac{4x}{2} + \frac{4.02x}{5} - \frac{x}{3}$

$\frac{74.12x}{30}$ or 2.4707x

Difficulty: Hard

Jerome - Chapter 02A... #214

Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents

Source: Test bank

Topic: Algebra

Type: Word

215. Simplify the following expression $\frac{2.8x}{2} - \frac{6.15x}{1.5} - \frac{2x}{2.75}$

$-\frac{28.275x}{8.25}$ or -3.4273x

Difficulty: Hard

Jerome - Chapter 02A... #215

Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents

Source: Test bank

Topic: Algebra

Type: Word

216. Evaluate the following, given R = 725, I = .076, n = 4 $\frac{R}{i}\left[1 + \frac{1}{(1+\ i)^n}\right]$

16,656.11

Difficulty: Hard

Jerome - Chapter 02A... #216

Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents

Source: Test bank

Topic: Algebra

Type: Word

217. Evaluate: $(1+i)^m - 1$ for i = 0.0225, m = 4

0.093083

Difficulty: Easy

Jerome - Chapter 02A... #217

Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents

Source: Test bank

Topic: Algebra

Type: Word

218. Simplify: $\left(-\frac{2x^2}{3}\right)^{-2}\left(\frac{5^2}{6x^3}\right)\left(-\frac{15}{x^5}\right)^{-1}$

$$-\frac{5}{8x^2}$$

Difficulty: Medium

Jerome - Chapter 02A... #218

Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents

Source: Test bank

Topic: Algebra

Type: Word

219. Evaluate and calculate to the cent: $L(1-d_1)(1-d_2)(1-d_3)$ for L = \$490, $d_1 = 0.125,\ d_2 = 0.15,\ d_3 = 0.05$

\$346.22

Difficulty: Medium

Jerome - Chapter 02A... #219

Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents

Source: Test bank

Topic: Algebra

Type: Word

220. Evaluate: $R[\frac{(1+i)^n - 1}{i}]$ for R = \$1,200, i = 0.02, n = 6

\$7,569.745

Difficulty: Medium

Jerome - Chapter 02A... #220

Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents

Source: Test bank

Topic: Algebra

Type: Word

221. Simplify: $\frac{\left[\left(x^{1/3}\right)\left(x^{2/3}\right)x\right]^{3/2}}{\left(8x^3\right)^{2/3}}$

$\frac{x}{4}$

Difficulty: Medium

Jerome - Chapter 02A... #221

Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents

Source: Test bank

Topic: Algebra

Type: Word

222. Perform operations and gather like terms: $\frac{x}{1+0.085\times\frac{63}{365}}+2x\left(1+0.085\times\frac{151}{365}\right)$

3.05587x

Difficulty: Medium

Jerome - Chapter 02A... #222

Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents

Source: Test bank

Topic: Algebra

Type: Word

223. Simplify: $x^7 \div x^{-4} \div x^3$

x^8

Difficulty: Medium

Jerome - Chapter 02A... #223

Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents

Source: Test bank

Topic: Algebra

Type: Word

CHAPTER 2A Summary

Category	*# of Questions*
Difficulty: Easy	137
Difficulty: Hard	20
Difficulty: Medium	67
Gradable: manual	9
Jerome - Chapter 02A...	225
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents	64
Learning Objective: 02-02 Rearrange a formula or equation to isolate a particular variable	43
Learning Objective: 02-03 Solve a linear equation in one variable; and two linear equations in two variables	28
Learning Objective: 02-04 Graph a linear equation in two variables	5
Learning Objective: 02-05 Express a linear equation in slope intercept form	4
Learning Objective: 02-06 Solve two equations in two unknowns by a graphical method	4
Learning Objective: 02-07 Solve "word problems" that lead to a linear equation in one unknown; or two linear equations in two unknowns	30
Learning Objective: 02-08 Solve problems involving percent change	48
Source: Student text	196
Source: Test bank	27
Topic: Algebra	223
Type: Word	223