MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Decide whether the given number is a solution to the equation preceding it.

1) $p + 13 = 22$; 9 1) _____
A) Yes B) No

2) $p - 1 = 5$; 6 2) _____
A) Yes B) No

3) $3m + 2 = 28$; 8 3) _____
A) No B) Yes

4) $4y + 3(y - 4) = 37$; 7 4) _____
A) No B) Yes

5) $8p + 4p - 4 = 32$; 3 5) _____
A) No B) Yes

6) $(x - 5)^2 = 36$; -11 6) _____
A) No B) Yes

7) $\sqrt{3x + 5} = 3; \frac{4}{3}$ 7) _____
A) Yes B) No

Solve the problem.

8) A small farm field is a square measuring 270 ft on a side. What is the perimeter of the field? 8) _____
A) 540 ft B) 2160 ft C) 270 ft D) 1080 ft

9) What will it cost to buy ceiling molding to go around a rectangular room with length 20 ft and width 9 ft? The molding costs $1.67 per linear foot. 9) _____
A) $48.43 B) $30.06 C) $66.80 D) $96.86

10) A pest control company sprays insecticide around the perimeter of a 460 ft by 280 ft building. If the spray costs $0.14 per linear foot to be sprayed, how much did the job cost to the nearest dollar? 10) _____
A) $104 B) $1503 C) $207 D) $18,032

11) A one-story building is 120 ft by 420 ft. If a square patio with sides 30 ft occupies the center of the building, how much area remains for offices? 11) _____
A) 960 ft^2 B) 1080 ft^2 C) 1050 ft^2 D) 49,500 ft^2

12) How much will it cost to carpet a 18 ft by 25 ft room if carpeting costs $14.50 per square yard? Round the answer to the nearest cent. 12) _____
A) $2175.00 B) $6525.00 C) $543.75 D) $725.00

13) A room measures 13 ft by 21 ft. The ceiling is 11 ft above the floor. The door is 3 ft by 7 ft. A gallon of paint will cover 82.3 ft^2. How many gallons of paint are needed to paint the room (including the ceiling and not including the door)? Round your answer up to the next whole number. 13) _____
A) 9 gallons B) 13 gallons C) 4 gallons D) 22 gallons

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14) A wicker basket has a circular rim with a diameter of 7 in. How many inches of ribbon are needed to go once around the rim? Use 3.14 for π. Round the answer to the nearest hundredth if necessary. 14) _____

A) 21.98 in. B) 49 in. C) 43.96 in. D) 19.98 in.

15) A cylindrical jelly jar is 3 in. across the top and about 9 in. high. How many cubic inches of jelly could it hold? Use 3.14 for π. Round the answer to the nearest tenth if necessary. 15) _____

A) 169.6 in.^{3} B) 127.2 in.^{3} C) 254.3 in.^{3} D) 63.6 in.^{3}

16) The foundation for a cylindrical flower bed is a cylinder 19 m in diameter and 4 m high. How many cubic m of concrete are needed to build the foundation? Use 3.14 for π. Round the answer to the nearest tenth if necessary. 16) _____

A) 1133.5 m^3 B) 477.3 m^3 C) 2267.1 m^3 D) 4534.2 m^3

17) A sphere has a 8 m diameter. What is its volume? Use 3.14 for π. Round the answer to the nearest tenth if necessary. 17) _____

A) 150.7 m^3 B) 2143.6 m^3 C) 67.0 m^3 D) 267.9 m^3

Use the formulas relating distance, rate, and time.

18) A flight departs at 8:30 A.M. EST and arrives at its destination at 11:00 A.M. PST. If the plane flies at an average rate of $360\frac{1}{3}$ mph, what distance does it travel? Round to the nearest whole number if necessary. 18) _____

A) 1,982 miles B) 1,622 miles C) 2,342 miles D) 901 miles

19) A flight departs at 8:30 A.M. EST and arrives at its destination at 10:10 A.M. CST. If the plane flies at an average rate of 360.4 mph, what distance does it travel? Round to the nearest whole number if necessary. 19) _____

A) 1,321 miles B) 961 miles C) 1,682 miles D) 601 miles

20) A family began a trip of 375 miles at 8 A.M. They arrived at their final destination at 4:30 P.M. If they took three 20-minute breaks and took a half hour for lunch, what was their average rate? Round to the nearest tenth if necessary. 20) _____

A) 68.2 mph B) 57.7 mph C) 62.5 mph D) 53.6 mph

Use the formula relating amperes, ohms, and voltage to solve the problem.

V = ir

21) A technician measures the current in a circuit to be -6.4 amperes and the resistance is 7 ohms. Find the voltage. 21) _____

A) -44.8 V B) 1.094 V C) -0.914 V D) 0.6 V

22) A technician measures the current in a circuit to be 6.3 amperes and the resistance is 7 ohms. Find the voltage. 22) _____

A) 1.111 V B) 44.1 V C) 0.7 V D) 13.3 V

Use the formulas below to answer the question. Round your answer to the nearest tenth if necessary.

$C = \frac{5}{9}(F - 32)$ or $C = \frac{F - 32}{1.8}$

$F = \frac{9}{5}C + 32$ or $F = 1.8C + 32$.

23) The average temperature on a planet in a solar system is 104°F. What is this temperature in degrees Celsius? 23) _____
A) 219.2°C B) 25.8°C C) 40°C D) 56°C

24) When the temperature is 90°F, what is the temperature in degrees Celsius? 24) _____
A) 130.0°C B) 194.0°C C) 32.2°C D) 18.0°C

25) When the temperature is below 30°F the first grade students are not allowed to play outside. What is this temperature in degrees Celsius? 25) _____
A) 15.3°C B) 22.0°C C) 86.0°C D) -1.1°C

26) When the temperature is 35°C, what is the temperature in degrees Fahrenheit? 26) _____
A) 95°F B) 69.4°F C) 51.3°F D) 120.6°F

27) A chemical must be stored at 34°C. What is this temperature in degrees Fahrenheit? 27) _____
A) 2.5°F B) 50.9°F C) 118.8°F D) 93.2°F

Determine whether the given equation is linear.

28) $9x + 4 = 3$ 28) _____
A) Linear B) Not Linear

29) $5x + 6 = x - 2$ 29) _____
A) Linear B) Not Linear

30) $7x + 8y = 9$ 30) _____
A) Linear B) Not Linear

31) $y = 7x + 2$ 31) _____
A) Linear B) Not Linear

32) $3x + x^2 = 3$ 32) _____
A) Linear B) Not Linear

33) $y = 2x^2 + 4$ 33) _____
A) Linear B) Not Linear

34) $x = -8$ 34) _____
A) Linear B) Not Linear

35) $x^2 + y^2 = -4$ 35) _____
A) Linear B) Not Linear

36) $2y = 8$ 36) _____

A) Linear B) Not Linear

37) $2n + 7 = 9n + 2(n - 7)$ 37) _____

A) Linear B) Not Linear

Solve.

38) $x + 6 = 7$ 38) _____

A) -13 B) -1 C) 13 D) 1

39) $a - 7 = -4$ 39) _____

A) -11 B) -3 C) 3 D) 11

40) $-29 = n - 1$ 40) _____

A) -28 B) 28 C) 30 D) -30

41) $-6.1 = y + 7.1$ 41) _____

A) 1 B) -1 C) -13.2 D) 13.2

42) $-8.7 = z - 6.1$ 42) _____

A) 2.6 B) 14.8 C) -2.6 D) -14.8

43) $x - \frac{14}{25} = -\frac{12}{25}$ 43) _____

A) $-\frac{2}{25}$ B) $-\frac{26}{25}$ C) $\frac{26}{25}$ D) $\frac{2}{25}$

44) $m - \frac{2}{9} = \frac{1}{3}$ 44) _____

A) 1 B) $\frac{1}{9}$ C) $\frac{2}{9}$ D) $\frac{5}{9}$

45) $t + \frac{5}{12} = \frac{2}{3}$ 45) _____

A) 3 B) $\frac{1}{4}$ C) $\frac{13}{12}$ D) $\frac{7}{12}$

46) $\frac{1}{4} + x = 11$ 46) _____

A) 43 B) $\frac{5}{2}$ C) $\frac{43}{4}$ D) $\frac{45}{4}$

47) $9x - 8x = 11$ 47) _____

A) 11 B) 0 C) $-\frac{1}{11}$ D) -11

48) $4x + 12 - 3x = 0$ 48) _____

A) -0.75 B) 12 C) -1.333 D) -12

49) $5p - 16 = 4p - 8$ 49) _____

A) -5 B) 8 C) 7 D) 9

50) $3z + 8 = 2z + 6$ 50) _____

A) 2 B) 14 C) -2 D) -14

51) $10y = 7y + 4 + 2y$ 51) _____

A) 40 B) -40 C) -4 D) 4

52) $-7b + 2 + 5b = -3b + 7$ 52) _____

A) 7 B) -2 C) -7 D) 5

53) $-6a + 2 + 7a = 12 - 26$ 53) _____

A) 16 B) 40 C) -16 D) -40

54) $5.7p + 27 = 6.7p + 13$ 54) _____

A) 13 B) 15 C) 7 D) 14

55) $\frac{4}{5}x + \frac{10}{3} = \frac{4}{9} - \frac{1}{5}x + \frac{4}{9}$ 55) _____

A) $-\frac{26}{9}$ B) $-\frac{38}{9}$ C) $\frac{38}{9}$ D) $-\frac{22}{9}$

56) $5(2z - 5) = 9(z + 4)$ 56) _____

A) 61 B) 11 C) 16 D) -11

57) $2(y + 5) = 3(y - 6)$ 57) _____

A) -28 B) -8 C) 8 D) 28

58) $-4(k + 6) - (-5k - 8) = 1$ 58) _____

A) 13 B) - 17 C) 17 D) - 15

59) $7y - 2(y - 6) = 11y - (7y + 13)$ 59) _____

A) 25 B) 1 C) -25 D) -1

60) $5(2x - 6) - 7(6 - 4x) = -24 + 39x$ 60) _____

A) -48 B) -72 C) 36 D) -96

61) $2(2z - 3) = 3(z + 2) + z$ 61) _____

A) 12 B) 0

C) All real numbers D) No solution

62) $6(2z + 11) = 11(z + 6) + z$ 62) _____

A) 132 B) 0

C) All real numbers D) No solution

Translate into an equation, then solve.

63) Bob is saving to buy a car. The total amount that he needs is $14,000. The amount that he has saved so far is $6000. How much more does Bob need? 63) _____

A) 6000 - x = 14,000; Bob needs $8002 more.
B) 6000 + x = 14,000; Bob needs $8000 more.
C) 6000 - x = 14,000; Bob needs $8000 more.
D) 6000 + x = 14,000; Bob needs $8002 more.

64) Betsy has a balance of -$498 on her credit card. What payment should she make to get the balance to -$203? 64) _____

A) -203 + x = -498; A payment of $395 must be made.
B) -498 + x = -203; A payment of $295 must be made.
C) -498 + x = -203; A payment of $395 must be made.
D) -203 + x = -498; A payment of $295 must be made.

65) Ken is to receive 690 cc of insulin in three injections. The first injection is to be 175 cc. The second injection is to be 240 cc. How much insulin must be given for the third injection? 65) _____

A) 175 - 240 + x = 690; The third injection must be 275 cc .
B) 175 - 240 + x = 690; The third injection must be 755 cc .
C) 175 + 240 + x = 690; The third injection must be 275 cc .
D) 175 + 240 + x = 690; The third injection must be 755 cc .

66) A weatherman reports that since 6:00 am this morning the temperature has dropped by 5° F to the current temperature of 49° F. What was the temperature at 6:00 am ? 66) _____

A) x + 5 = 49; The temperature at 6:00am was 54° F.
B) x + 5 = 49; The temperature at 6:00am was 44° F.
C) x - 5 = 49; The temperature at 6:00am was 44° F.
D) x - 5 = 49; The temperature at 6:00am was 54° F.

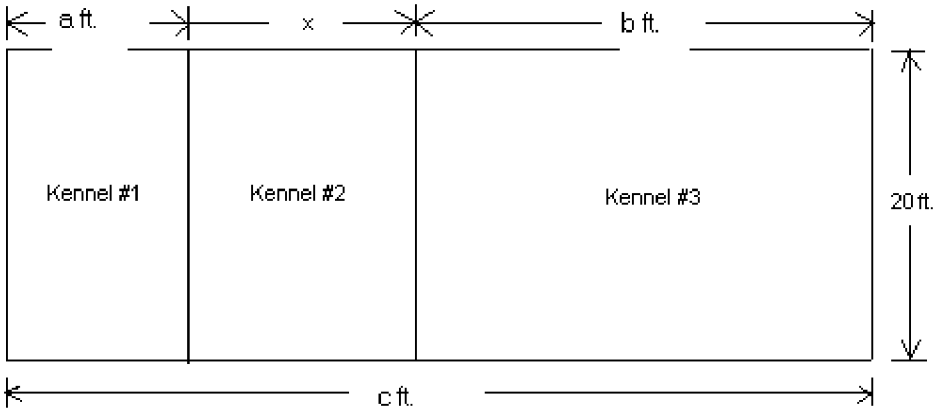
67) A weatherman reports that since 6:00 am this morning the temperature has dropped by 21° F to the current temperature of -5° F. What was the temperature at 6:00 am ? 67) _____

A) x - 21 = -5; The temperature at 6:00am was - 16° F.
B) x + 21 = -5; The temperature at 6:00am was 16° F.
C) x + 21 = -5; The temperature at 6:00am was - 16° F.
D) x - 21 = -5; The temperature at 6:00am was 16° F.

68) Bob works as a salesman. He was told that he will get a bonus if he has $12,110 in sales over a four-week period. The first week his sales were $2340. The second week his sales were $1820. The third week his sales were $3185. How much must Bob sell during the final week to get the bonus? 68) _____

A) 2340 + 1820 + 3185x = 12,110; Bob must have sales of $4485.
B) 2340 + 1820 + 3185 + x = 12,110; Bob must have sales of $4765.
C) 2340 + 1820 + 3185 - x = - 12,110; Bob must have sales of $4765.
D) 2340 + 1820 + 3185 = x + 12,110; Bob must have sales of $4885.

69) Elissa is using fencing to build three dog kennels as shown in the drawing. 69) _____

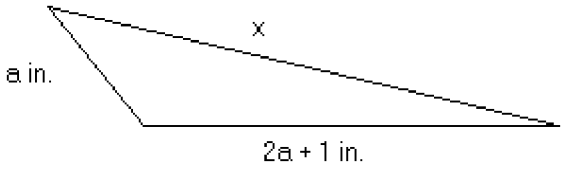


a = 8 b =26 c = 50

Find the missing measurement for Kennel #2.

A) 8 + x + 26 = 50; 16 ft.
B) 8 + 26 - 20 = x; 14 ft.
C) 8 + x + 26 + 20 = 50; 36 ft.
D) 8 + x - 26 = 50; 68 ft.

70) The perimeter of the triangle is 198 inches. Find the missing length. 70) _____



a = 38

A) 77 + x = 198; 121 inches
B) 38 + 77 + 198 = x; 313 inches
C) 38 + 77 + x = 236; 121 inches
D) 38 + 77 + x = 198; 83 inches

Solve.

71) -2a = 14 71) _____

A) 16 B) -7 C) -16 D) 1

72) -28.0 = -7.0c 72) _____

A) 21.0 B) 2.0 C) 4.0 D) -21.0

73) -7x = -28 73) _____

A) -21 B) 21 C) 2 D) 4

74) $\frac{7}{8}x = 21$ 74) _____

A) $\frac{147}{8}$ B) $\frac{161}{8}$ C) $\frac{175}{8}$ D) 24

75) $-\frac{1}{22}a = 0$ 75) _____

A) 1 B) 22 C) -22 D) 0

76) $-\frac{1}{2}s = -\frac{3}{4}$ 76) _____

A) $\frac{3}{2}$ B) 6 C) $\frac{2}{3}$ D) $-\frac{3}{2}$

77) $10r + 6 = 106$ 77) _____

A) 94 B) 4 C) 90 D) 10

78) $5n - 7 = 8$ 78) _____

A) 3 B) 8 C) 10 D) 14

79) $62 = 9x - 10$ 79) _____

A) 67 B) 8 C) 63 D) 16

80) $126 = 11x + 3x$ 80) _____

A) 112 B) 140 C) 9 D) $\frac{1}{9}$

81) $4(5x - 1) = 16$ 81) _____

A) $\frac{17}{20}$ B) 1 C) $\frac{3}{5}$ D) $\frac{3}{4}$

82) $-9x + 4 = -5 - 6x$ 82) _____

A) $-\frac{2}{3}$ B) $\frac{1}{3}$ C) 3 D) 15

83) $7 - 9x = 6x - 4x - 70$ 83) _____

A) 10 B) $\frac{70}{11}$ C) 9 D) 7

84) $8x - 9 = 9(x - 6)$ 84) _____

A) -63 B) 45 C) 63 D) -45

85) $4x + 4 + 6(x + 1) = -2x + 3$ 85) _____

A) -2 B) $\frac{1}{10}$ C) $-\frac{7}{12}$ D) 1

86) $3(3x + 2) - 25 = 7x - 3$ 86) _____

A) 32 B) 8 C) -8 D) 16

87) $5 - 9(y + 7) = 4 - 8y$ 87) _____

A) $\frac{54}{17}$ B) -62 C) 64 D) 8

88) $8x + 4(-2x - 2) = 1 - 9x$ 88) _____

A) $-\frac{7}{9}$ B) 1 C) -1 D) $\frac{7}{9}$

89) $-28 - (3y + 2) = 3(y + 2) + 3y$ 89) _____

A) $-\frac{1}{4}$ B) -4 C) -12 D) $-\frac{28}{9}$

90) $-2(x + 2) + 17 = 5x - 7(x + 1)$ 90) _____

A) 24 B) 10
C) all real numbers D) no solution

91) $19x + 15(x + 1) = 34(x + 1) - 19$ 91) _____

A) 0 B) all real numbers
C) 1 D) no solution

92) $-15s + 149 + 5(3s - 29) = 0$ 92) _____

A) 1 B) no solution
C) 3 D) all real numbers

Use the multiplication principle of equality to eliminate the fractions or decimals; then solve.

93) $\frac{4}{3}x + 4 = \frac{1}{5}$ 93) _____

A) $-\frac{59}{20}$ B) $\frac{3}{4}$ C) $-\frac{57}{20}$ D) $\frac{1}{10}$

94) $\frac{3}{2}x + \frac{8}{5} = \frac{7}{5}x$ 94) _____

A) -30 B) 16 C) 30 D) -16

95) $\frac{1}{5}x + \frac{6}{5} = \frac{1}{7}x + \frac{8}{7}$ 95) _____

A) 1 B) 2 C) -2 D) -1

96) $\frac{3}{4}x - \frac{7}{10} = \frac{1}{4} + \frac{3}{5}x$ 96) _____

A) $\frac{19}{3}$ B) 4 C) $\frac{19}{12}$ D) -3

97) $\frac{1}{5}(y + 2) = \frac{6}{5} - y$ 97) _____

A) $\frac{2}{3}$ B) 2 C) -2 D) -1

98) $\frac{1}{5}(m - 3) = \frac{9}{10}(m + 4) - \frac{4}{5}m$ 98) _____

A) 42 B) 7 C) 10 D) $-\frac{39}{4}$

99) $-3.3q = -23.1 - 1.2q$ 99) _____

A) 7.4 B) 7.0 C) -25 D) 11

100) $1.1x + 3.1 = 0.4x - 1.31$ 100) _____

A) 0.159 B) -6.3 C) -6.29 D) -6.237

101) $0.4 - 8.2y - 2.4y = 1 - 10.6y - 0.6$ 101) _____

A) all real numbers B) no solution

C) 0.4 D) -10.6

102) $-0.7(30) + 0.8x = 0.3(30 + x)$ 102) _____

A) 30 B) 70 C) 60 D) 50

103) $-0.03y + 0.15(1000 - y) = 0.07y$ 103) _____

A) 1800 B) 37.5 C) 600 D) 375

104) $7 - 1.2(w - 5) = 0.4(2w - 9)$ 104) _____

A) 8.3 B) 15 C) 5.5 D) 2.3

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Find the mistake.

105) 105) _____

line 1 $3x - 10 = 5x - 3$

line 2 $-3x \quad = -3x$

line 3 $10 = 2x - 3$

line 4 $10 = 2x - 3$

line 5 $+3 = \quad +3$

line 6 $13 = 2x$

line 7 $\frac{13}{2} = \frac{2x}{2}$

line 8 $\frac{13}{2} = x$

106) 106) _____

line 1 $2 - (x + 6) = 4x + 5(x - 3)$

line 2 $2 - x + 6 = 4x + 5x - 15$

line 3 $8 - x = 9x - 15$

line 4 $8 - x = 9x - 15$

$+x \quad +x$

line 5 $8 = 10x - 15$

line 6 $8 = 10x - 15$

$+15 \quad +15$

line 7 $23 = 10x$

line 8 $\frac{23}{10} = \frac{10x}{10}$

line 9 $\frac{23}{10} = x$

107) Check: $6x - 5 = 3x + 2$ for $x = \frac{7}{3}$ 107) _____

line 1 $\frac{6}{1}\left(\frac{7}{3}\right) - 5 \stackrel{?}{=} \frac{3}{1}\left(\frac{7}{3}\right) + 2$

line 2 $\frac{\overset{2}{\cancel{6}}}{1}\left(\frac{7}{\cancel{3}}\right) - 5 \stackrel{?}{=} \frac{1}{\cancel{3}}\left(\frac{7}{\cancel{3}}\right) + 2$

line 3 $2 - 5 \stackrel{?}{=} 7 + 2$

line 4 $-3 \neq 9$

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Solve the problem.

108) The area of a rectangular garden is to be 147 ft.^{2}. Find the length if the width must be 7 ft. (Use A = lw) 108) _____

A) 140 ft. B) 23 ft. C) 21 ft. D) 20 ft.

109) A box has a volume of 784 in.^{3}. The length is 7 in. and the width is 16 in. Find the height. (Use V = lwh) 109) _____

A) 5 in. B) 8 in. C) 7 in. D) 11 in.

110) The Smith family is planning a 539-mile trip. If they travel at an average speed of 49 miles per hour, what will be their travel time? (Use d = rt) 110) _____

A) 13 hr. B) 11 hr. C) 12 hr. D) 10 hr.

111) The surface area of a cardboard box is 6334 in.^{2}. If the length is 37 in. and the width is 26 in., find the height. (Use SA = 2lw + 2lh + 2wh) 111) _____

A) 34 in. B) 35 in. C) 37 in. D) 36 in.

112) The perimeter of a rectangular garden is to be 42 ft. Find the length if the width is 5 ft. (Use P = 2l + 2w) 112) _____

A) 13 ft. B) 15 ft. C) 14 ft. D) 16 ft.

113) The formula C = 28d + 20 describes the total cost of renting a truck, where C is the total cost and d is the number of days the truck is rented. How many days can the truck be rented for $412? 113) _____

A) 14 days B) 12 days C) 24 days D) 15 days

114) A circle has a circumference of 44π m. Find the radius of the circle. (Use $C = 2\pi r$.) 114) _____

A) 11 m B) 44 m C) 7 m D) 22 m

Solve the equation for the indicated variable.

115) $A = \frac{1}{2}bh$; b 115) _____

A) $b = \frac{h}{2A}$ B) $b = \frac{2A}{h}$ C) $b = \frac{Ah}{2}$ D) $b = \frac{A}{2h}$

116) $S = 2\pi rh + 2\pi r^2$; h

A) $h = \frac{S - 2\pi r^2}{2\pi r}$ B) $h = \frac{S}{2\pi r} - 1$ C) $h = 2\pi(S - r)$ D) $h = S - r$

117) $V = \frac{1}{3}Bh$; h

A) $h = \frac{3B}{V}$ B) $h = \frac{B}{3V}$ C) $h = \frac{V}{3B}$ D) $h = \frac{3V}{B}$

118) $P = s_1 + s_2 + s_3$; s_3

A) $s_3 = P + s_1 + s_2$ B) $s_3 = s_1 + s_2 - P$ C) $s_3 = P - s_1 - s_2$ D) $s_3 = s_1 + P - s_2$

119) $F = \frac{9}{5}C + 32$; C

A) $C = \frac{5}{9}(F - 32)$ B) $C = \frac{F - 32}{9}$ C) $C = \frac{5}{F - 32}$ D) $C = \frac{9}{5}(F - 32)$

120) $A = \frac{1}{2}h(b_1 + b_2)$; b_1

A) $b_1 = \frac{A - hb_2}{2h}$ B) $b_1 = \frac{2Ab_2 - h}{h}$ C) $b_1 = \frac{2A - hb_2}{h}$ D) $b_1 = \frac{hb_2 - 2A}{h}$

121) $d = rt$; r

A) $r = d - t$ B) $r = \frac{t}{d}$ C) $r = \frac{d}{t}$ D) $r = dt$

122) $P = 2L + 2W$; W

A) $W = P - L$ B) $W = d - 2L$ C) $W = \frac{P - 2L}{2}$ D) $W = \frac{P - L}{2}$

123) $A = P(1 + nr)$; r

A) $r = \frac{A}{n}$ B) $r = \frac{P - A}{Pn}$ C) $r = \frac{Pn}{A - P}$ D) $r = \frac{A - P}{Pn}$

124) $V = 4s^3$; s^3

A) $s^3 = \frac{4}{V}$ B) $s^3 = V - 4$ C) $s^3 = 4V$ D) $s^3 = \frac{V}{4}$

125) $I = \frac{nE}{nr + R}$; n

A) $n = IR(Ir - E)$ B) $n = \frac{-IR}{Ir - E}$ C) $n = \frac{IR}{Ir + E}$ D) $n = \frac{-R}{Ir - E}$

126) $P = a + b + c$; a

A) $a = P + b + c$ B) $a = P - b - c$ C) $a = b + c - P$ D) $a = b + P - c$

127) $M = \frac{f + h + y}{7}$; h

127) _____

A) $h = 7M - f - y$ B) $h = 7(M - f - y)$ C) $h = 7M + 7f + fy$ D) $h = 7M + f + y$

128) $C = py + ey$; y

128) _____

A) $y = \frac{C}{p + e}$ B) $y = \frac{C}{pe}$ C) $y = \frac{C}{p - e}$ D) $y = C - p - e$

129) $a + b = s + r$; r

129) _____

A) $r = s(a + b)$ B) $r = a + b - s$ C) $r = \frac{a}{s} + b$ D) $r = \frac{a + b}{s}$

130) $x = \frac{w + y + z}{3}$; y

130) _____

A) $y = x - w - z - 3$
B) $y = 3x + w + z$
C) $y = 3x - 3w - 3z$
D) $y = 3x - w - z$

131) $9k + ar = r - 6y$; r

131) _____

A) $r = \frac{9k + 6y}{a - 1}$ or $r = \frac{-9k - 6y}{1 - a}$

B) $r = \frac{-9k - 6y}{a - 1}$ or $r = \frac{9k + 6y}{1 - a}$

C) $r = \frac{9k + a}{1 - 6y}$ or $r = \frac{-9k - a}{6y - 1}$

D) $r = \frac{a - 1}{-9k - 6y}$ or $r = \frac{1 - a}{9k + 6y}$

132) $5s + 4p = tp - 4$; p

132) _____

A) $p = \frac{5s + 4}{-t}$ or $p = \frac{-5s - 4}{t}$

B) $p = \frac{4 - t}{-5s - 4}$ or $p = \frac{t - 4}{5s + 4}$

C) $p = \frac{5s + 4}{4}$ or $p = \frac{-5s - 4}{-4}$

D) $p = \frac{-5s - 4}{4 - t}$ or $p = \frac{5s + 4}{t - 4}$

133) $w = \frac{6y - x}{y}$; y

133) _____

A) $y = \frac{x}{w - 6}$ or $y = \frac{-x}{6 - w}$

B) $y = \frac{w - 6}{-x}$ or $y = \frac{6 - w}{x}$

C) $y = \frac{-x}{w - 6}$ or $y = \frac{x}{6 - w}$

D) $y = \frac{6 - x}{w}$ or $y = \frac{x - 6}{-w}$

134) $c = \frac{9t + 5}{t}$; t

134) _____

A) $t = \frac{c + 9}{5}$ or $t = \frac{-c - 9}{-5}$

B) $t = \frac{-5}{c - 9}$ or $t = \frac{5}{-c + 9}$

C) $t = \frac{5}{c - 9}$ or $t = \frac{-5}{-c + 9}$

D) $t = \frac{14}{c}$ or $t = \frac{-14}{-c}$

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Find the mistake.

135) $4x + 7y = 11$; isolate y 135) _____

line 1 $4x + 7y = 11$
line 2 $\underline{-4x} \quad \underline{-4x}$
line 3 $7y = 11 - 4x$

line 4 $7y = 11 - 4x$
line 5 $\underline{-7} \quad \underline{-7}$
line 6 $y = 4 - 4x$

136) $\frac{1}{4}xy = z$; isolate x 136) _____

line 1 $\frac{1}{4}xy = z$

line 2 $\frac{4}{1} \cdot \frac{1}{4}xy = 4z$

line 3 $xy = 4z$

line 4 $\frac{1}{y} \cdot xy = 4z \cdot \frac{y}{1}$

line 5 $x = 4zy$

137) $\frac{5a - 1}{3} = xt$; isolate a 137) _____

line 1 $\frac{5a - 1}{3} = xt$

line 2 $\frac{3}{1} \cdot \frac{5a - 1}{3} = xt \cdot 3$

line 3 $5a - 3 = 3xt$

line 4 $5a - 3 = 3xt$
line 5 $\underline{+3} \quad \underline{+3}$
line 6 $5a = 3xt + 3$

line 7 $\frac{5a}{5} = \frac{3xt + 3}{5}$

line 8 $a = \frac{3xt + 3}{5}$

138) $4(c - 1) = ys$; isolate c 138) _____

line 1 $4(c - 1) = ys$
line 2 $4c - 1 = ys$

line 3 $4c - 1 = ys$
line 4 $+1 \quad +1$
line 5 $4c = ys + 1$

line 6 $\frac{4c}{4} = \frac{ys + 1}{4}$

line 7 $c = \frac{ys + 1}{4}$

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Translate the sentence to an equation and then solve.

139) The sum of the number x and 5 is 18. 139) _____

A) $x + 5 = 18$; 13 B) $x + 18 = 5$; -13 C) $5x = 18$; $\frac{5}{18}$ D) $x = 5 + 18$; 23

140) y minus 5 equals 1. 140) _____

A) $y = 5 - 1$; 4 B) $y - 5 = 1$; 6 C) $y = 1 - 5$; -4 D) $5 - y = 1$; 4

141) 3 times the number w equals 4 less than 4 times the number. 141) _____

A) $3w = 4 - 4$; 0 B) $3w = 4 - 4w$; $\frac{4}{7}$

C) $3w - 4 = 4w$; -4 D) $3w = 4w - 4$; 4

142) The number c increased by three is equal to fifteen. 142) _____

A) $c + 3 = 15$; 12 B) $3 + c = 15$; -12 C) $3 - c = 15$; -12 D) $c = 15 + 3$; 18

143) m decreased by five is equal to eleven. 143) _____

A) $m - 5 = 11$; 16 B) $m = 11 - 5$; 6 C) $m - 11 = 5$; 6 D) $5 - m = 11$; -6

144) A number g increased by three is negative sixteen. 144) _____

A) $3 + g = -16$; 19 B) $3 + g = -16$; -13 C) $g + 3 = -16$; -19 D) $g - 16 = 3$; 19

145) The product of negative three and n results in twenty-four. 145) _____

A) $-8n = 3$; 8 B) $-3 + n = 24$; 27 C) $-3n = 24$; 8 D) $-3n = 24$; -8

146) Thirty-six more than the product of four and x yields sixty. 146) _____

A) $4x + 60 = 36$; -6 B) $4x + 60 = 36$; 6

C) $4x + 36 = 60$; 6 D) $36x + 60 = 4$; 24

147) Twice the difference of three and n is the same as three subtracted from negative one times n. 147) _____

A) 2(3 - n) = -n - 3; 9
B) 2(3 - n) = -n - 3; 1
C) 2(3 - n) = -n - 3; 3
D) 2(n - 3) = 3 - n; 3

148) Negative three times the sum of x and eight is equal to x minus the difference of x and twelve. 148) _____

A) -3(x + 8) = x - (12 - x); 12
B) -3(x + 8) = x - (x - 12); -4
C) -3(x + 8) = x - (x - 12); -12
D) -3(x + 8) = x - (12 - x); -4

149) If 5 times a number is added to -8, the result is equal to 13 times the number. 149) _____

A) 5x - (-8) = 13x; 1
B) 13(5x - 8) = -8; -1
C) 5x + (-8) = 13x; -1
D) 5x + 8x = 13; 1

Translate the equation to a word sentence.

150) 4x + 6 = 12 150) _____

A) Four times a number and six is twelve.
B) Four times the sum of a number and six is twelve.
C) Four times a number plus six is twelve.
D) Four times the sum of a number added to six is twelve.

151) 4x - 7 = 13 151) _____

A) Four times a number less seven is thirteen.
B) Four times the difference of a number and seven is thirteen.
C) Four times a number less than seven is thirteen.
D) Four times a number subtracted from seven is thirteen.

152) 4(x + 6) = -10x 152) _____

A) Four times the sum of a number and six is equal to the number subtract ten.
B) Four times the sum of a number and six is equal to the product of negative ten and the number.
C) Four times a number and six is equal to the product of negative ten and the number.
D) Four times a number plus six is equal to the product of negative ten and the number.

153) 2(x - 7) = -12x 153) _____

A) Two times a number subtracted from seven is equal to the product of negative twelve and the number.
B) Two times the difference of a number subtracted from seven is equal to negative twelve times the number.
C) Two times a number subtract seven is equal to the product of negative twelve and the number.
D) Two times the difference of a number and seven is equal to the product of negative twelve and the number.

154) 3(x - 8) = -10(x + 4) 154) _____

A) Three times a number subtract eight is equal to the product of negative ten and the sum of a number and four.
B) Three times a number subtracted from eight is equal to the product of negative ten and four more than the number.
C) Three times the difference of a number subtracted from eight is equal to negative ten times four more than the number.
D) Three times the difference of a number and eight is equal to the product of negative ten and the sum of a number and four.

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Explain the mistake in the translation.

155) Four less than a number is eighty. 155) _____

Translation: $4 - n = 80$

156) Eight divided into a number is negative seventy. 156) _____

Translation: $8 \div n = -70$

157) Ten times the difference of a number and three is equal to negative twenty. 157) _____

Translation: $10n - 3 = -20$

158) Ten times a number minus the sum of the number and two is equal to negative thirty. 158) _____

Translation: $10n - n + 2 = -30$

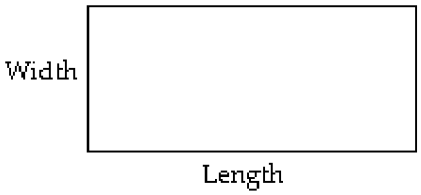
159) Ten times the sum of a number and three is equal to the number minus the difference of the number and fifty. 159) _____

Translation: $10(n + 3) = n - (50 - n)$

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

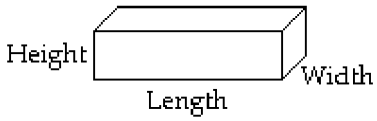
Translate to a formula, then use the formula to solve the problem. Round the answer to the nearest whole number if necessary.

160) The perimeter of a rectangle is equal to twice the sum of its length and width. Find the perimeter with a length 40 ft. and a width 9 ft. 160) _____



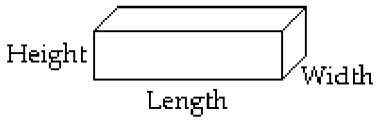
A) 196 ft B) 49 ft C) 98 ft D) 89 ft

161) The surface area of a box is equal to twice the sum of its length times its width, its length times its height, and its width times its height. Find the surface area of a box with a length of 4 ft., a width of 2 ft., and a height of 5 ft. 161) _____



A) 66 ft^2 B) 52 ft^2 C) 76 ft^2 D) 38 ft^2

162) The surface area of a box is equal to twice the sum of its length times its width, its length times its height, and its width times its height. Find the surface area of a box with a length of 16.7 cm, a width of 9.7 cm, and a height of 17.7 cm. 162) _____



A) 1259 cm^2 B) 1087 cm^2 C) 630 cm^2 D) 991 cm^2

163) The simple interest earned after investing an amount of money, called principal, is equal to the product of the principal, the interest rate, and the time in years that the money remains invested. Use the formula to calculate the interest for the following investment. 163) _____

Principal: $2000
Rate: 0.05
Time: 2 years

A) $2,100 B) $200 C) $2,200 D) $100

Write the ratio in simplest form.

164) An athlete ran 18 miles this week, including 12 miles today. Write the ratio of miles run this week to miles run today. 164) _____

A) $\frac{19}{13}$ B) $\frac{2}{3}$ C) $\frac{3}{2}$ D) $\frac{13}{19}$

165) The length of the garden is 76 feet. The width is 32 feet. Write the ratio of the width to the length. 165) _____

A) $\frac{7}{3}$ B) $\frac{19}{8}$ C) $\frac{3}{7}$ D) $\frac{8}{19}$

166) There are 21 people on a commuter train. There are 6 people talking on cell phones. Write the ratio of people on the train to people talking on cell phones. 166) _____

A) $\frac{7}{22}$ B) $\frac{22}{7}$ C) $\frac{2}{7}$ D) $\frac{7}{2}$

167) Specimen X is 9 inches long. Specimen Y is 27 inches long. Write the ratio of the length of specimen X to the length of specimen Y. 167) _____

A) $\frac{5}{14}$ B) $\frac{3}{1}$ C) $\frac{14}{5}$ D) $\frac{1}{3}$

168) A molecule of ethanol is composed of two atoms of carbon, six atoms of hydrogen, and one atom of oxygen. Write the ratio of oxygen atoms to total atoms in a molecule of ethanol. 168) _____

A) 9 B) 1 C) $\frac{1}{9}$ D) $\frac{1}{8}$

169) Rick ran $2\frac{3}{4}$ laps on the track. Debbie ran $3\frac{1}{2}$ laps. Write the ratio of laps run by Rick to laps run by Debbie. 169) _____

A) $\frac{28}{22}$ B) $\frac{22}{28}$ C) $\frac{11}{14}$ D) $\frac{14}{11}$

Solve the problem. Round, as appropriate.

170) The price of a 12-ounce soft drink is $1.99. Write the unit ratio that expresses the price to volume. 170) _____

A) $\frac{\$1.99}{12 \text{ oz.}}$ B) $\frac{\$0.17}{1 \text{ oz.}}$ C) $\frac{\$6.03}{1 \text{ oz.}}$ D) $\frac{\$0.27}{1 \text{ oz.}}$

171) The following chart shows the number of games that three youth baseball teams have played and won this season. 171) _____

Team	Games Played	Games Won
Cubs	10	7
Giants	12	4
Cardinals	11	8

Write the unit ratio of games won to games played for the Cubs.

A) $\frac{1.43}{1}$ B) $\frac{10}{7}$ C) $\frac{7}{10}$ D) $\frac{0.7}{1}$

172) The following chart shows the number of games that three youth baseball teams have played and won this season. 172) _____

Team	Games Played	Games Won
Cubs	10	6
Giants	12	4
Cardinals	11	8

Write the unit ratio of games won by the Giants to games won by the Cardinals.

A) $\frac{0.75}{1}$ B) $\frac{0.33}{1}$ C) $\frac{0.5}{1}$ D) $\frac{1}{2}$

Tell which brand is the better buy.

173) Brand X: 12 ounces for $4.92; Brand Y: 8 ounces for $3.12 173) _____

A) Brand X B) Brand Y
C) The brands are equal values. D) Not enough information is provided.

174) Brand A: 42 ounces for $13.86; Brand B: 36 ounces for $10.44 174) _____

A) Brand A B) Brand B
C) The brands are equal values. D) Not enough information is provided.

175) Brand A: 35 ounces for $9.80; Brand B: 40 ounces for $12.80 175) _____

A) Brand A B) Brand B
C) The brands are equal values. D) Not enough information is provided.

176) Brand X: 10 ounces for $3.60; Brand Y: 15 ounces for $5.55 176) _____

A) Brand X B) Brand Y
C) The brands are equal values. D) Not enough information is provided.

Determine whether the ratios are equal.

177) $\frac{3}{4} \stackrel{?}{=} \frac{24}{32}$ 177) _____

A) Yes B) No

178) $\frac{4}{7} \stackrel{?}{=} \frac{16}{56}$ 178) _____

A) Yes B) No

179) $\frac{19}{20} \stackrel{?}{=} \frac{11}{10}$ 179) _____

A) Yes B) No

180) $\frac{20}{12} \stackrel{?}{=} \frac{25}{15}$ 180) _____

A) Yes B) No

181) $\frac{2}{11} \stackrel{?}{=} \frac{19}{26}$ 181) _____

A) Yes B) No

182) $\frac{11\frac{1}{3}}{5} \stackrel{?}{=} \frac{102}{45}$ 182) _____

A) Yes B) No

183) $\frac{6\frac{1}{4}}{12} \stackrel{?}{=} \frac{144}{288}$ 183) _____

A) Yes B) No

184) $\frac{16.5}{41.2} \stackrel{?}{=} \frac{49.5}{123.6}$ 184) _____

A) Yes B) No

185) $\frac{2\frac{1}{4}}{8\frac{1}{6}} \stackrel{?}{=} \frac{4\frac{1}{2}}{16\frac{1}{2}}$ 185) _____

A) Yes B) No

Solve for the missing number.

186) $\frac{x}{38} = \frac{9}{19}$ 186) _____

A) 36 B) 18 C) $4\frac{1}{2}$ D) $80\frac{2}{9}$

187) $\frac{1}{2} = \frac{x}{17}$ 187) _____

A) 34 B) $\frac{1}{34}$ C) 17 D) $8\frac{1}{2}$

188) $\frac{35}{150} = \frac{14}{x}$ 188) _____

A) $\frac{1}{60}$ B) 2065 C) 60 D) $\frac{490}{150}$

189) $\frac{-3.6}{2} = \frac{x}{9}$ 189) _____

A) -16.2 B) 16.2 C) -0.20 D) 6.3

190) $\frac{m}{5.9} = \frac{2.52}{5.31}$ 190) _____

A) 4.4 B) 5.9 C) 2.8 D) 1.6

191) $\frac{8}{-\frac{1}{7}} = \frac{42}{x}$ 191) _____

A) $-\frac{3}{4}$ B) $-\frac{7}{8}$ C) $\frac{7}{8}$ D) $-\frac{6}{7}$

192) $\frac{1}{4} = \frac{n}{5\frac{1}{9}}$ 192) _____

A) $\frac{18}{23}$ B) $20\frac{1}{9}$ C) $1\frac{5}{18}$ D) $2\frac{1}{4}$

193) $\frac{2}{x-3} = \frac{1}{x}$ 193) _____

A) 3 B) -3 C) $-\frac{1}{3}$ D) -1

194) $\frac{x-4}{x+6} = \frac{2}{3}$ 194) _____

A) $\frac{24}{5}$ B) 0 C) 24 D) 10

195) $\frac{2}{x-4} = \frac{6}{x+6}$ 195) _____

A) 3 B) $-\frac{9}{2}$ C) $\frac{5}{2}$ D) 9

Solve the problem.

196) If 3 sandwich rolls cost $0.36, how much will 21 rolls cost? 196) _____

A) $3.08 B) $2.52 C) $3.52 D) $1.08

197) Jim drove 360 miles in 8 hours. If he can keep the same pace, how long will it take him to drive 1080 miles? 197) _____

A) 48 hours B) 24 hours C) 2880 hours D) 34 hours

198) In second gear on Anne's bicycle, the back wheel rotates 7 times for every 4 rotations of the pedals. If her back wheel is rotating 994 times per mile, how many times is she rotating the pedals per mile? 198) _____

A) 998 times per mile B) 568 times per mile

C) 1739.5 times per mile D) 1001 times per mile

199) On a map of the Thunderbird Country Club golf course, 0.5 inches represent 15 yards. How long is the 5th hole if the map shows 10 inches? 199) _____

A) 150 yards B) 0.8 yards C) 75 yards D) 300 yards

200) The 12th hole at the Riverwoods Golf Course is 500 yards long. How long would it be on a model with a scale of 2.5 inches to 100 yards? 200) _____

A) 6.25 inches B) 250 inches C) 125 inches D) 12.5 inches

201) A quality-control inspector examined 250 calculators and found 17 of them to be defective. At this rate, how many defective calculators will there be in a batch of 20,000 calculators? 201) _____

A) 4250 calculators B) 1360 calculators

C) 5 calculators D) 80 calculators

202) Under typical conditions, $1\frac{1}{2}$ ft of snow will melt to 2 in. of water. To how many inches of water will $2\frac{2}{3}$ ft of snow melt? 202) _____

A) $3\frac{2}{3}$ in. B) $3\frac{5}{9}$ in. C) $5\frac{1}{3}$ in. D) 4 in.

203) Dr. Wong can see 11 patients in 2 hours. At this rate, how long would it take her to see 22 patients? 203) _____

A) 3 hours B) 4 hours C) 22 hours D) 121 hours

204) Mara can type 36 words per minute. How many words would she type in $\frac{1}{2}$ hour (30 minutes)? 204) _____

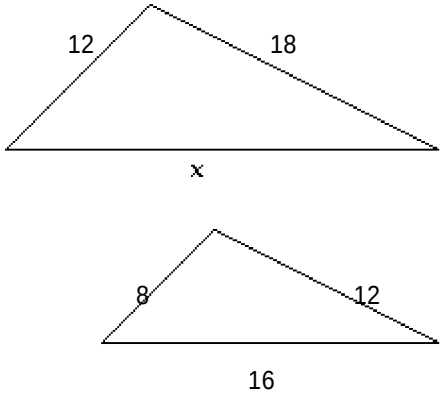
A) 18 words B) 540 words C) 1080 words D) 72 words

205) If a boat uses 21 gallons of gas to go 61 miles, how many miles can the boat travel on 84 gallons of gas? 205) _____

A) 264 miles B) 244 miles C) 488 miles D) 15 miles

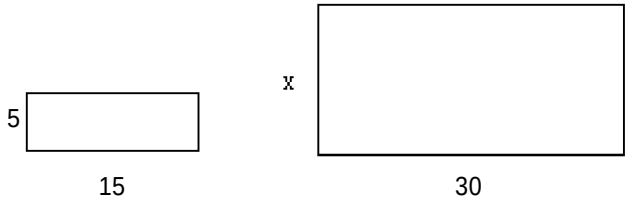
Find any missing lengths in the similar figures.

206) 206) _____



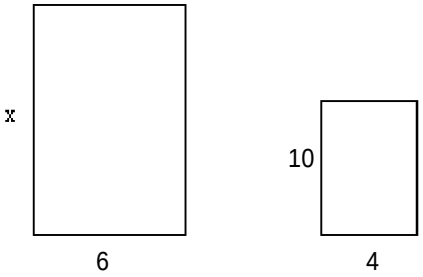
A) x = 23 B) x = 30 C) x = 24 D) x = 16

207) 207) _____



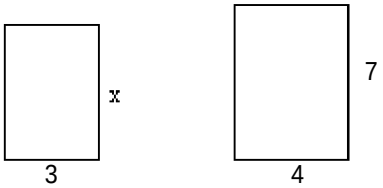
A) x = 5 B) x = 20 C) x = 10 D) x = 9

208) 208) _____



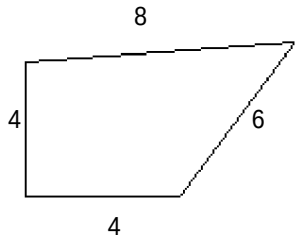
A) x = 9 B) x = 12 C) x = 16 D) x = 15

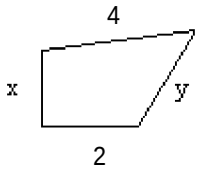
209) 209) _____



A) x = 5.25 B) x = 8 C) x = 6.75 D) x = 6

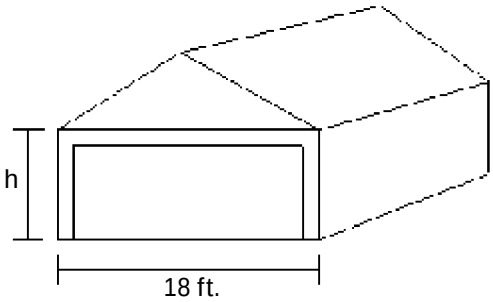
210) 210) _____

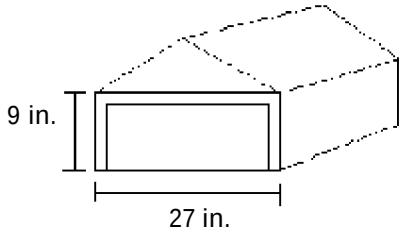




A) x = 2; y = 4 B) x = 3; y = 4 C) x = 4; y = 6 D) x = 2; y = 3

211) 211) _____





A) 3 ft. B) 6 ft. C) 27 ft. D) 36 ft.

Solve the problem.

212) A tree casts a shadow 28 m long. At the same time, the shadow cast by a 47-cm tall statue is 76 cm long. Find the height of the tree to the nearest meter. 212) _____

A) 16 m B) 44 m C) 45 m D) 17 m

213) A line from the top of a cliff to the ground passes just over the top of a pole 7.0 feet high and meets the ground at a point 9.0 feet from the base of the pole. If the point is 87 feet from the base of the cliff, how high is the cliff to the nearest foot? 213) _____

A) 68 feet B) 609 feet C) 5481 feet D) 6 feet

214) Ivan, who is 1.96 m tall, wishes to find the height of a tree. He walks 20.00 m from the base of the tree along the shadow of the tree until his head is in a position where the tip of his shadow exactly overlaps the end of the tree top's shadow. He is now 8.92 m from the end of the shadows. How tall is the tree? Round to the nearest hundredth. 214) _____

A) 6.35 m B) 0.87 m C) 3.54 m D) 4.39 m

215) Syed, who is 1.78 m tall, wishes to find the height of a tree with a shadow 34.74 m long. He walks 23.37 m from the base of the tree along the shadow of the tree until his head is in a position where the tip of his shadow exactly overlaps the end of the tree top's shadow. How tall is the tree? Round to the nearest hundredth. 215) _____

A) 1.78 m B) 5.44 m C) 2.98 m D) 2.65 m

216) A church steeple casts a shadow 104 ft long, and at the same time a 9.0-ft post casts a shadow 5.0 ft long. How high is the steeple? Round to the nearest unit. 216) _____

A) 58 ft B) 187 ft C) 122 ft D) 9 ft

217) A line from the top of a cliff to the ground passes just over the top of a pole 7.0 ft high and meets the ground at a point 6.0 ft from the base of the pole. If the point is 71 ft from the base of the cliff, how high is the cliff? Round to the nearest unit. 217) _____

A) 6 ft B) 83 ft C) 497 ft D) 2982 ft

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide an appropriate response.

218) Ben drove his car 590 kilometers in 6 hours while he was on vacation in Italy. He was trying to estimate how far he could drive in 8 hours the next day so he set up the following proportion: $\frac{590}{6} = \frac{8}{x}$. Explain why this proportion will not give him the correct answer. 218) _____

219) Alice is 13 years old. Her hair is 8 inches long. Can you set up a proportion to determine how long her hair will be when she is 23 years old? Explain. 219) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

220) Suppose you want to solve the following problem. A teacher can grade 7 essays in 2 hours. At this rate, how many essays will she be able to grade in 5 hours? Which of the following proportions will give the correct answer? 220) _____

(i) $\frac{7}{2} = \frac{x}{5}$ (ii) $\frac{7}{2} = \frac{5}{x}$ (iii) $\frac{2}{7} = \frac{x}{5}$ (iv) $\frac{2}{7} = \frac{5}{x}$

A) (i) only B) (i) and (iv) C) (iii) only D) (ii) and (iii)

Write the percent as a decimal.

221) 53% 221) _____

A) 0.053 B) 0.53 C) 5.3 D) 0.42

222) 40% 222) _____

A) 4 B) 0.4 C) 0.29 D) 0.04

223) 93.9% 223) _____

A) 0.939 B) 0.0939 C) 0.829 D) 9.39

224) 500% 224) _____

A) 5 B) 0.5 C) 50 D) 5.01

225) 910% 225) _____

A) 91 B) 0.91 C) 9.11 D) 9.1

226) 579% 226) _____

A) 5.8 B) 5.79 C) 0.579 D) 57.9

227) 0.8% 227) _____

A) 0.08 B) 0.009 C) 0.008 D) 0.8

228) 94.85% 228) _____

A) 9.485 B) 0.9385 C) 0.9485 D) 0.09485

229) $66\frac{2}{3}\%$ 229) _____

A) $0.\overline{6}$ B) $66.\overline{6}$ C) $6.\overline{6}$ D) 0.6623

230) $12\frac{1}{9}\%$ 230) _____

A) $0.12\overline{1}$ B) 0.121 C) $12.\overline{1}$ D) $0.\overline{121}$

Write the percent as a fraction in simplest form.

231) 30% 231) _____

A) $\frac{3}{5}$ B) $\frac{3}{20}$ C) 3 D) $\frac{3}{10}$

232) $91\frac{2}{3}\%$ 232) _____

A) $\frac{11}{12}$ B) $\frac{11}{6}$ C) $\frac{55}{6}$ D) $\frac{11}{24}$

233) $144\frac{4}{9}\%$ 233) _____

A) $1\frac{4}{9}$ B) $14\frac{4}{9}$ C) $\frac{13}{18}$ D) $2\frac{8}{9}$

234) 0.6% 234) _____

A) $\frac{3}{1000}$ B) $\frac{3}{500}$ C) $\frac{3}{50}$ D) $\frac{3}{250}$

235) $\frac{1}{4}\%$ 235) _____

A) $\frac{1}{800}$ B) $\frac{1}{400}$ C) $\frac{1}{40}$ D) $\frac{1}{200}$

236) 37.5% 236) _____

A) $\frac{3}{8}$ B) $\frac{3}{11}$ C) $\frac{15}{4}$ D) $\frac{1}{3}$

237) 9.75% 237) _____

A) $\frac{195}{2}$ B) $\frac{39}{4}$ C) $\frac{39}{40}$ D) $\frac{39}{400}$

Write as a percent. Round your answer to the nearest tenth, if necessary.

238) $\frac{68}{100}$ 238) _____

A) 680% B) 68% C) 6.8% D) 0.68%

239) $\frac{2}{10}$ 239) _____

A) 20% B) 0.2% C) 2% D) 200%

240) $\frac{1}{8}$ 240) _____

A) 15.6% B) 12.5% C) 1.3% D) 80%

241) $\frac{8}{11}$ 241) _____

A) 72.7% B) 66.1% C) 7.3% D) 110%

242) $\frac{33}{100}$ 242) _____

A) 3.3% B) 1000% C) 16.5% D) 33%

243) $\frac{9}{19}$ 243) _____

A) 4.7% B) 47.4% C) 24.9% D) 190%

244) $\frac{11}{2}$ 244) _____

A) 1375% B) 55% C) 550% D) 40%

Write as a percent.

245) 0.46 245) _____

A) 46% B) 460% C) 4.6% D) 0.046%

246) 0.5 246) _____

A) 500% B) 50% C) 0.05% D) 0.5%

247) 0.938 247) _____

A) 0.0938% B) 93.8% C) 0.938% D) 938%

248) 0.483 248) _____

A) 0.483% B) 48.3% C) 483% D) 0.0483%

249) 8.7 249) _____

A) 87% B) 0.0087% C) 870% D) 0.87%

250) 0.00570 250) _____

A) 0.0570% B) 0.000570% C) 0.285% D) 0.570%

251) 7 251) _____

A) 350% B) 0.07% C) 0.7% D) 700%

252) 0.00012 252) _____

A) 0.12% B) 0.0012% C) 0.012% D) 0.000012%

253) 0.015 253) _____

A) 0.15% B) 15% C) 0.0015% D) 1.5%

254) 0.2443 254) _____

A) 244.3% B) 2.443% C) 0.02443% D) 24.43%

Translate word for word or to a proportion, then solve.

255) 30% of 700 is what number? 255) _____

A) 2.1 B) 2100 C) 210 D) 21

256) 0.7% of 5000 is what number? 256) _____

A) 4 B) 350 C) 35 D) 3500

257) What number is 80% of 478? 257) _____

A) 38.24 B) 3824 C) 382.4 D) 38,240

258) What number is 18% of $41\frac{1}{2}$? 258) _____

A) $7\frac{47}{100}$ B) $74\frac{7}{10}$ C) $\frac{747}{1000}$ D) 747

259) What number is $14\frac{1}{4}$% of 46? 259) _____

A) $65\frac{11}{20}$ B) $6\frac{111}{200}$ C) $\frac{1311}{2000}$ D) $655\frac{1}{2}$

260) 12.74 is 26% of what number? 260) _____

A) 0.49 B) 490 C) 4.9 D) 49

261) 12.4 is $14\frac{2}{7}$% of what number? 261) _____

A) 74.4 B) 0.868 C) 86.8 D) 0.744

262) 25.53 is what percent of 37? 262) _____

A) 6.9% B) 69% C) 0.69% D) 690%

263) What percent of 194 is 12.0? 263) _____

A) 6.2% B) 0.1% C) 0.2% D) 1616.7%

264) What percent of 51 is 671? 264) _____

A) 131.6% B) 1315.7% C) 0.1% D) 0.8%

Solve the problem.

265) An investment broker invests $58,600 in highway bonds and earns 11% per year on the investment. How much money is earned per year? 265) _____

A) $53,273 B) $532,727 C) $64,460 D) $6446

266) A chemical solution contains 8% potassium. How much potassium is in 2 mL of solution? 266) _____

A) 0.16 mL B) 1.6 mL C) 2.5 mL D) 25 mL

267) A hardware store had monthly sales of $56,000 and spent 30% of it on advertising. How much was spent on advertising? 267) _____

A) $18,667 B) $186,667 C) $16,800 D) $168,000

268) The First Commerce Bank pays $3\frac{2}{3}$% interest per year on money market accounts. What is the annual income on a money market account of $90,400? Round your answer to the nearest dollar. 268) _____

A) $301,333 B) $3,013,333 C) $3315 D) $33,150

269) An analyst has 85 clients, 40% of which are businesses. Find the number of business clients. 269) _____

A) 34 clients B) 34,000 clients C) 340 clients D) 3400 clients

270) Alex and Juana went on a 150-mile canoe trip with their class. On the first day they traveled 18 miles. What percent of the total distance did they canoe? 270) _____

A) 0.12% B) 12% C) 8% D) 800%

271) Students at Maple School earned $222 selling candles. They want to accumulate $2000 for a club trip. What percent of their goal has been reached? 271) _____

A) 9% B) 90% C) 11.1% D) 0.111%

272) Alex has saved $644 at the bank. He wants to accumulate $1750 for a trip to soccer camp. What percent of his goal has been reached? 272) _____

A) 30% B) 36.8% C) 3% D) 0.368%

273) 45.5% of the students at a certain college are men. If the total number of students at the college is 3000, how many female students are there? 273) _____

A) 1500 students B) 1655 students C) 1635 students D) 1365 students

274) During one year, the Green's real estate bill included $398 for city services. The fire department received 45% of that amount. How much money went to the fire department? 274) _____

A) $179.10 B) $17.91 C) $159.10 D) $55.00

275) If Gloria received a 4 percent raise and is now making $20,800 a year, what was her salary before the raise? Round to the nearest dollar if necessary. 275) _____

A) $19,968 B) $20,000 C) $18,800 D) $21,000

276) Stevie bought a stereo for $255 and put it on sale at his store at a 50% markup rate. What was the retail price of the stereo? Round to the nearest cent if necessary. 276) _____

A) $282.50 B) $355.00 C) $510.00 D) $382.50

277) On Monday, an investor bought 100 shares of stock. On Tuesday, the value of the shares went up 6%. How much did the investor pay for the 100 shares if he sold them Wednesday morning for $1272? Round to the nearest dollar if necessary. 277) _____

A) $1200 B) $1222 C) $1196 D) $1250

278) At the end of the day, a storekeeper had $1712 in the cash register, counting both the sale of goods and the sales tax of 7%. Find the amount that is the tax. Round to the nearest dollar if necessary. 278) _____

A) $112 B) $103 C) $120 D) $117

279) Brand X copier advertises that its copiers run 23% longer between service calls than its competitor. If Brand X copiers run 62,900 copies between service calls, how many copies would the competitor run (to the nearest copy)? 279) _____

A) 48,433 copies B) 35,537 copies C) 77,367 copies D) 51,138 copies

280) After receiving a discount of 14.5% on its bulk order of typewriter ribbons, John's Office Supply pays $2565. What was the price of the order before the discount? Round to the nearest dollar if necessary." 280) _____

A) $2321 B) $2193 C) $3000 D) $2937

281) After spending $2950 for tables and $1650 for chairs, a convention center manager finds that 45% of his original budget remains. Find the amount that remains. Round to the nearest dollar if necessary." 281) _____

A) $3764 B) $8364 C) $2070 D) $3000

282) Midtown Antiques collects 6% sales tax on all sales. If total sales including tax are $1986.58, find the portion that is the tax. Round to the nearest cent if necessary. 282) _____

A) $102.45 B) $1874.13 C) $112.45 D) $119.19

283) In a local election, 33,100 people voted. This was an increase of 8% over the last election. How many people voted in the last election? Round to the nearest whole person if necessary. 283) _____

A) 30,452 people B) 35,978 people C) 35,748 people D) 30,648 people

284) In a local election, 35,900 people voted. This was a decrease of 10% over the last election. How many people voted in the last election? Round to the nearest whole person if necessary. 284) _____

A) 32,636 people B) 32,310 people C) 39,889 people D) 39,490 people

A survey showed that students had these preferences for instructional materials. Use the graph to answer the question.

285) About how many students would you expect to prefer computers in a school of 350 students? 285) _____

A) About 126 students B) About 70 students
C) About 63 students D) About 36 students

286) About how many students would you expect to prefer lectures in a school of 400 students? 286) _____

A) About 18 students B) About 80 students
C) About 72 students D) About 144 students

287) About how many students would you expect to prefer written materials in a school of 950 students? 287) _____

A) About 9 students B) About 86 students
C) About 342 students D) About 171 students

288) About how many students would you expect to prefer radio in a school of 550 students? 288) _____

A) About 28 students B) About 198 students
C) About 5 students D) About 99 students

289) About how many students would you expect to prefer TV in a school of 250 students? 289) _____

A) About 12 students B) About 50 students
C) About 45 students D) About 30 students

290) About how many students would you expect to prefer films in a school of 300 students? 290) _____

A) About 54 students B) About 36 students
C) About 20 students D) About 60 students

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide an appropriate response.

291) Jessica wanted to solve the following problem: The price of an item increased by 15%. The amount of the increase was $86. What was the price of the item before the increase? She wrote the following equation: 15% × 86 = x. Will this equation will give her the correct answer? If not, what is the correct equation? 291) _____

292) The price of an item is reduced by 20% in a sale. Two weeks later the price is increased to 20% more than the sale price. Has the item been restored to its original price? If not, is its price now higher or lower than the original price? Explain. 292) _____

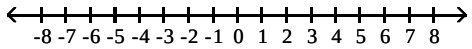
293) Roberto is an employee of a store and receives 20% discount off all items in the store. During a sale, the price of a jacket is reduced by $15. Roberto will receive both his 20% discount and the $15 off. Which is better for Roberto: to take his 20% discount first and then subtract $15, or to subtract $15 first and then take his 20% discount? Explain. 293) _____

294) Juan and Pete are hired at the same salary. Juan receives a 10% raise followed by an 8% raise a year later. Pete receives an 8% raise followed by a 10% raise a year later. After all the raises, whose salary is higher? Explain. 294) _____

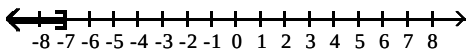
MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Solve and graph. Write the solution set in set-builder and interval notation.

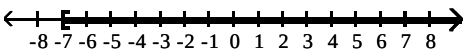
295) $x > -7$ 295) _____



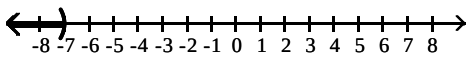
A) $\{x \mid x \leq -7\}$; $(-\infty, -7]$



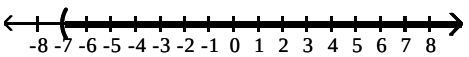
B) $\{x \mid x \geq -7\}$; $[-7, \infty)$



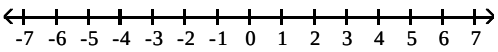
C) $\{x \mid x < -7\}$; $(-\infty, -7)$



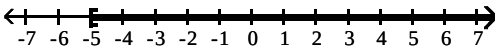
D) $\{x \mid x > -7\}$; $(-7, \infty)$



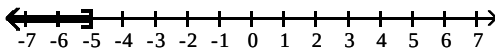
296) $x < -5$ 296) _____



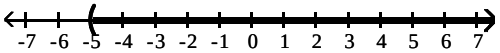
A) $\{x \mid x \geq -5\}$; $[-5, \infty)$



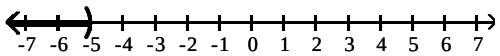
B) $\{x \mid x \leq -5\}$; $(-\infty, -5]$



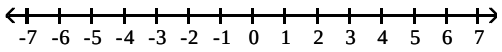
C) $\{x \mid x > -5\}$; $(-5, \infty)$



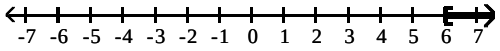
D) $\{x \mid x < -5\}$; $(-\infty, -5)$



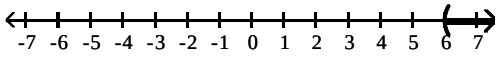
297) $x \geq 6$ 297) _____



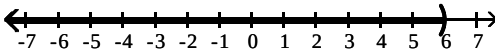
A) $\{x \mid x \geq 6\}$; $[6, \infty)$



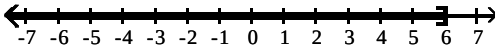
B) $\{x \mid x > 6\}$; $(6, \infty)$



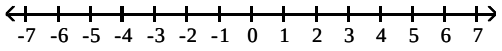
C) $\{x \mid x < 6\}$; $(-\infty, 6)$



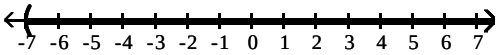
D) $\{x \mid x \leq 6\}$; $(-\infty, 6]$



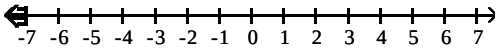
298) $x \leq -7$ 298) _____



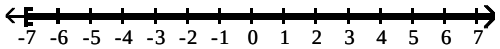
A) $\{x \mid x > -7\}$; $(-7, \infty)$



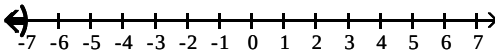
B) $\{x \mid x \leq -7\}$; $(-\infty, -7]$



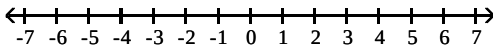
C) $\{x \mid x \geq -7\}$; $[-7, \infty)$



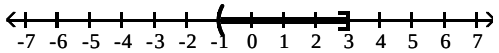
D) $\{x \mid x < -7\}$; $(-\infty, -7)$



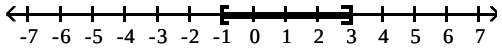
299) $-1 \le x \le 3$ 299) _____



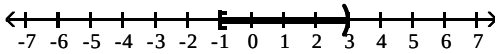
A) $\{x \mid -1 < x \le 3\}$; $(-1, 3]$



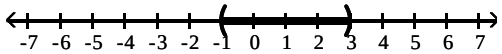
B) $\{x \mid -1 \le x \le 3\}$; $[-1, 3]$



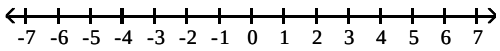
C) $\{x \mid -1 \le x < 3\}$; $[-1, 3)$



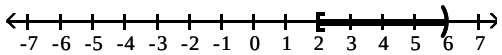
D) $\{x \mid -1 < x < 3\}$; $(-1, 3)$



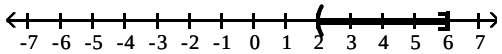
300) $2 < x < 6$ 300) _____



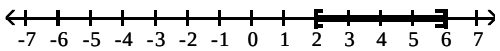
A) $\{x \mid 2 \le x < 6\}$; $[2, 6)$



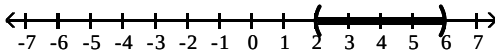
B) $\{x \mid 2 < x \le 6\}$; $(2, 6]$



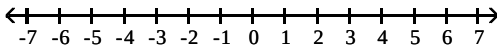
C) $\{x \mid 2 \le x \le 6\}$; $[2, 6]$



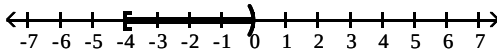
D) $\{x \mid 2 < x < 6\}$; $(2, 6)$



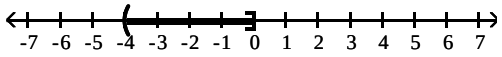
301) $-4 \le x < 0$ 301) _____



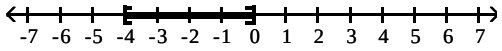
A) $\{x \mid -4 \le x < 0\}$; $[-4, 0)$



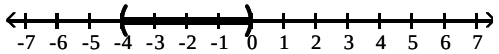
B) $\{x \mid -4 < x \le 0\}$; $(-4, 0]$



C) $\{x \mid -4 \le x \le 0\}$; $[-4, 0]$

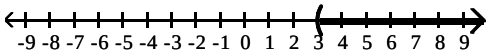


D) $\{x \mid -4 < x < 0\}$; $(-4, 0)$



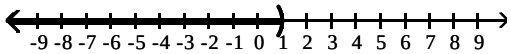
For the given graph, write the inequality in set-builder notation and interval notation.

302) 302) _____



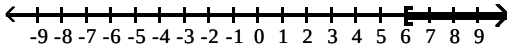
A) $\{x \mid x \le 3\}$, $(-\infty, 3]$
B) $\{x \mid x < 3\}$, $(-\infty, 3)$
C) $\{x \mid x \ge 3\}$, $[3, \infty)$
D) $\{x \mid x > 3\}$, $(3, \infty)$

303) 303) _____



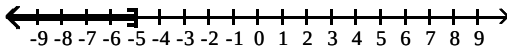
A) $\{x \mid x > 1\}$, $(1, \infty)$
B) $\{x \mid x < 1\}$, $(-\infty, 1)$
C) $\{x \mid x \le 1\}$, $(-\infty, 1]$
D) $\{x \mid x \ge 1\}$, $[1, \infty)$

304) 304) _____



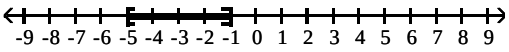
A) $\{x \mid x > 6\}$; $(6, \infty)$
B) $\{x \mid x < 6\}$; $(-\infty, 6)$
C) $\{x \mid x \le 6\}$; $(-\infty, 6]$
D) $\{x \mid x \ge 6\}$; $[6, \infty)$

305) 305) _____



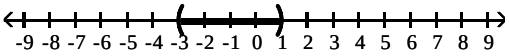
A) $\{x \mid x < -5\}$, $(-\infty, -5]$
B) $\{x \mid x \le -5\}$, $(-\infty, -5]$
C) $\{x \mid x \ge -5\}$, $[-5, \infty)$
D) $\{x \mid x > -5\}$, $(-5, \infty)$

306) 306) _____



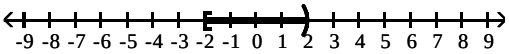
A) {x | -5 < x < -1}, (-5, -1)
B) {x | -5 ≤ x ≤ -1}, [-5, -1]
C) {x | x > -5 or x < -1}, (-5, -1)
D) {x | x ≥ -5 ≤ or x ≤ -1}, [-5, -1]

307) 307) _____



A) {x | -3 ≤ x ≤ 1}, [-3, 1]
B) {x | -3 < x < 1}, (-3, 1)
C) {x | x ≥ -3 ≤ or x ≤ 1}, [-3, 1]
D) {x | x > -3 or x < 1}, (-3, 1)

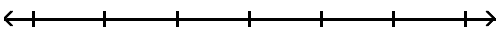
308) 308) _____



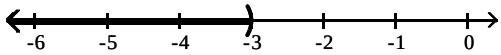
A) {x | x > -2 or x ≤ 2}, (-2, 2]
B) {x | x ≥ -2 or x < 2}, [-2, 2)
C) {x | -2 < x ≤ 2}, (-2, 2]
D) {x | -2 ≤ x < 2}, [-2, 2)

Solve and graph. Write the solution set in set-builder and interval notation.

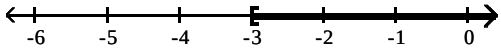
309) a + 4 < 1 309) _____



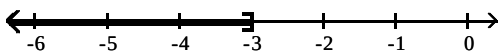
A) {a| a < -3}; (- ∞, -3)



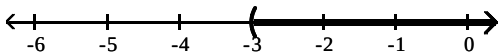
B) {a| a ≥ -3}; [-3, ∞)



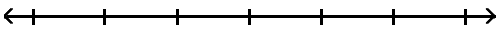
C) {a| a ≤ -3}; (- ∞, -3]



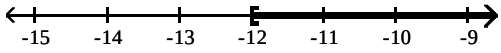
D) {a| a > -3}; (-3, ∞)



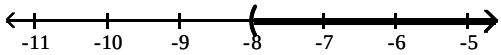
310) $-8m - 9 \geq -9m - 21$ 310) _____



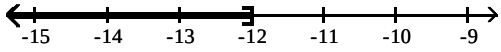
A) $\{m \mid m \geq -12\}$; $[-12, \infty)$



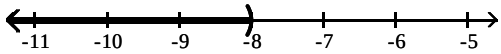
B) $\{m \mid m > -8\}$; $(-8, \infty)$



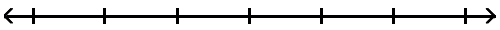
C) $\{m \mid m \leq -12\}$; $(-\infty, -12]$



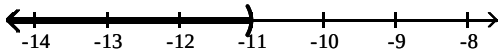
D) $\{m \mid m < -8\}$; $(-\infty, -8)$



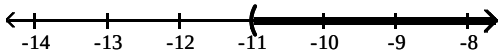
311) $x - 9 < -20$ 311) _____



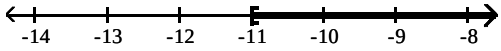
A) $\{x \mid x < -11\}$; $(-\infty, -11)$



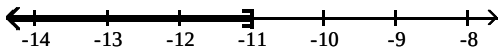
B) $\{x \mid x > -11\}$; $(-11, \infty)$



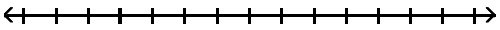
C) $\{x \mid x \geq -11\}$; $[-11, \infty)$



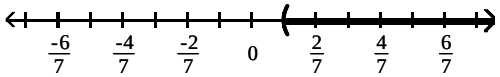
D) $\{x \mid x \leq -11\}$; $(-\infty, -11]$



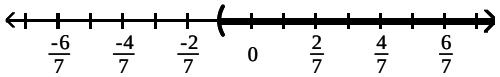
312) $x + \frac{1}{21} > \frac{4}{21}$ 312) _____



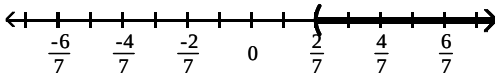
A) $\left\{x \mid x > \frac{1}{7}\right\}; \left(\frac{1}{7}, \infty\right)$



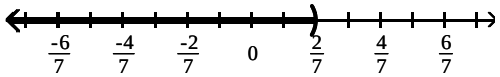
B) $\left\{x \mid x > -\frac{1}{7}\right\}; \left(-\frac{1}{7}, \infty\right)$



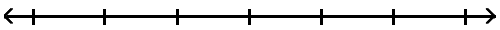
C) $\left\{x \mid x > \frac{1}{7}\right\}; \left(\frac{1}{7}, \infty\right)$



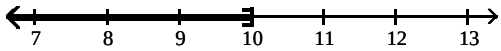
D) $\left\{x \mid x < \frac{2}{7}\right\}; \left(-\infty, \frac{2}{7}\right)$



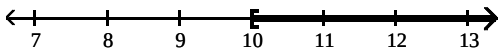
313) $\frac{b}{2} \geq 5$ 313) _____



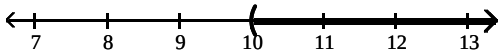
A) $\{b \mid b \leq 10\}$; $(-\infty, 10]$



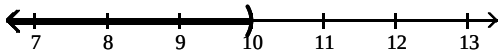
B) $\{b \mid b \geq 10\}$; $[10, \infty)$



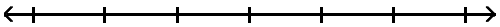
C) $\{b \mid b > 10\}$; $(10, \infty)$



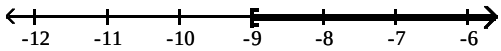
D) $\{b \mid b < 10\}$; $(-\infty, 10)$



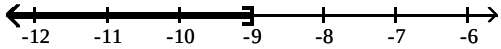
314) $-3 < \frac{a}{3}$ 314) _____



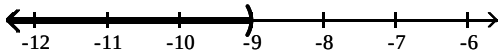
A) {a| a ≥ -9}; [-9, ∞)



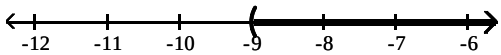
B) {a| a ≤ -9}; (- ∞, -9]



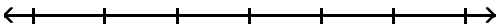
C) {a| a < -9}; (- ∞, -9)



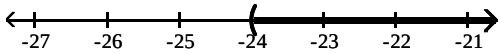
D) {a| a > -9}; (-9, ∞)



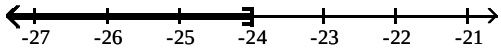
315) $\frac{x}{-4} < 6$ 315) _____



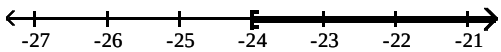
A) {x| x > -24}; (-24, ∞)



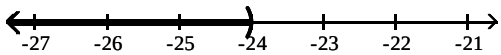
B) {x| x ≤ -24}; (- ∞, -24]



C) {x| x ≥ -24}; [-24, ∞)

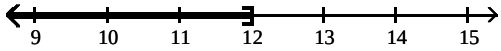


D) {x| x < -24}; (- ∞, -24)

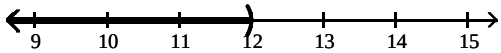


316) $-3 > \frac{k}{-4}$ 316) _____

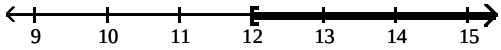
A) $\{k \mid k \leq 12\}$; $(-\infty, 12]$



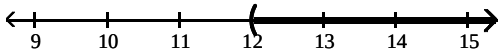
B) $\{k \mid k < 12\}$; $(-\infty, 12)$



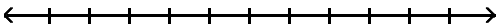
C) $\{k \mid k \geq 12\}$; $[12, \infty)$



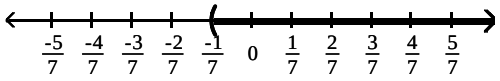
D) $\{k \mid k > 12\}$; $(12, \infty)$



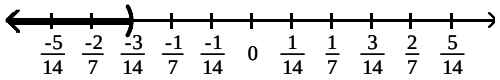
317) $-2x < -\frac{3}{7}$ 317) _____



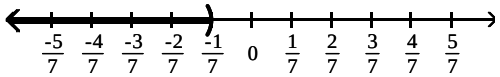
A) $\left\{x \mid x > -\frac{1}{7}\right\}$; $\left(-\frac{1}{7}, \infty\right)$



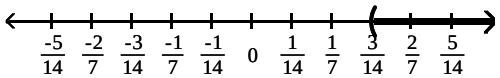
B) $\left\{x \mid x < -\frac{3}{14}\right\}$; $\left(-\infty, -\frac{3}{14}\right)$



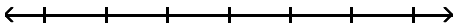
C) $\left\{x \mid x < -\frac{1}{7}\right\}$; $\left(-\infty, -\frac{1}{7}\right)$



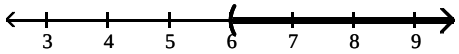
D) $\left\{x \mid x > \frac{3}{14}\right\}$; $\left(\frac{3}{14}, \infty\right)$



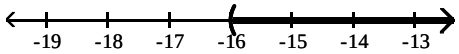
318) $7y - 11 > 6y - 5$ 318) _____



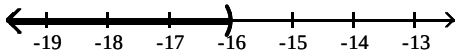
A) $\{y \mid y > 6\}$; $(6, \infty)$



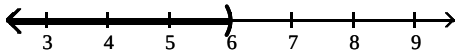
B) $\{y \mid y > -16\}$; $(-16, \infty)$



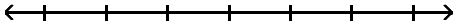
C) $\{y \mid y < -16\}$; $(-\infty, -16)$



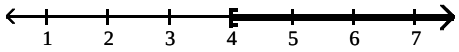
D) $\{y \mid y < 6\}$; $(-\infty, 6)$



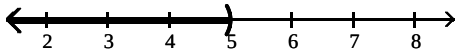
319) $5x + 1 \leq 4x + 5$ 319) _____



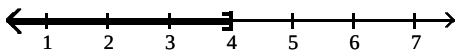
A) $\{x \mid x \geq 4\}$; $[4, \infty)$



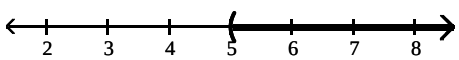
B) $\{x \mid x < 5\}$; $(-\infty, 5)$



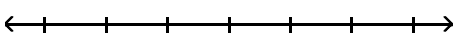
C) $\{x \mid x \leq 4\}$; $(-\infty, 4]$



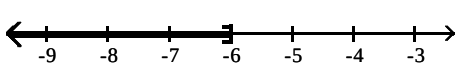
D) $\{x \mid x > 5\}$; $(5, \infty)$



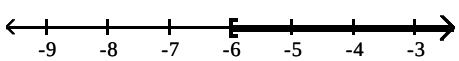
320) $6y + 10 \geq 5y + 4$ 320) _____



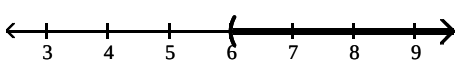
A) $\{y \mid y \leq -6\}$; $(-\infty, -6]$



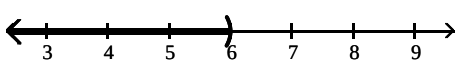
B) $\{y \mid y \geq -6\}$; $[-6, \infty)$



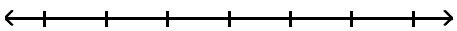
C) $\{y \mid y > 6\}$; $(6, \infty)$



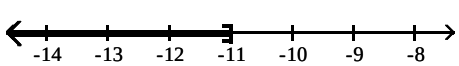
D) $\{y \mid y < 6\}$; $(-\infty, 6)$



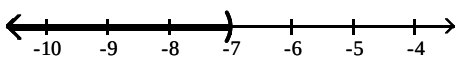
321) $10 - 7y + 3 \geq -8y + 2$ 321) _____



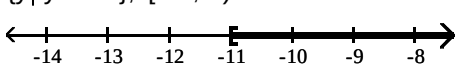
A) $\{y \mid y \leq -11\}$; $(-\infty, -11]$



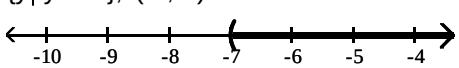
B) $\{y \mid y < -7\}$; $(-\infty, -7)$



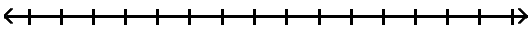
C) $\{y \mid y \geq -11\}$; $[-11, \infty)$



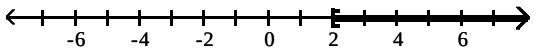
D) $\{y \mid y > -7\}$; $(-7, \infty)$



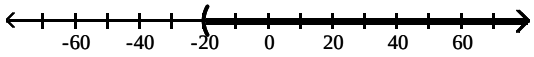
322) $0.6x + 13 + x > 2x + 11 - 0.5x$ 322) _____



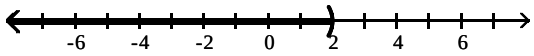
A) {x| x ≥ 2}; [2, ∞)



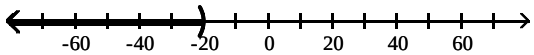
B) {x| x > -20}; (-20, ∞)



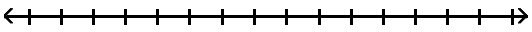
C) {x| x < 2}; (-∞, 2)



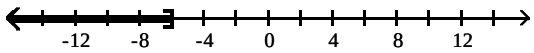
D) {x| x < -20}; (-∞, -20)



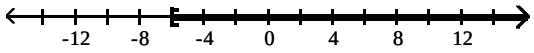
323) $\frac{x}{2} + 10 \leq 7$ 323) _____



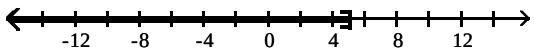
A) {x| x ≤ -6}; (-∞, -6]



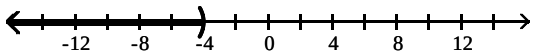
B) {x| x ≥ -6}; [-6, ∞)



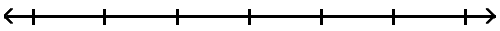
C) {x| x ≤ 5}; (-∞, 5]



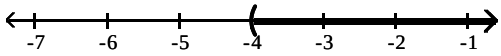
D) {x| x < -4}; (-∞, -4)



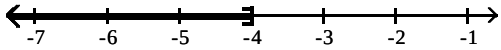
324) $10x - 14 > 2(4x - 11)$ 324) _____



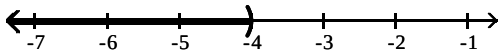
A) $\{x \mid x > -4\}$; $(-4, \infty)$



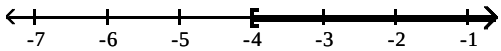
B) $\{x \mid x \leq -4\}$; $(-\infty, -4]$



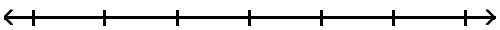
C) $\{x \mid x < -4\}$; $(-\infty, -4)$



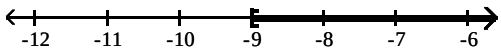
D) $\{x \mid x \geq -4\}$; $[-4, \infty)$



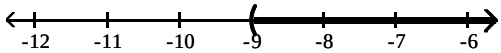
325) $-4(4y - 1) < -20y - 32$ 325) _____



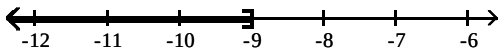
A) $\{y \mid y \geq -9\}$; $[-9, \infty)$



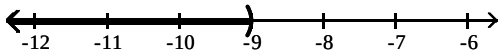
B) $\{y \mid y > -9\}$; $(-9, \infty)$



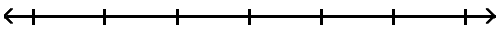
C) $\{y \mid y \leq -9\}$; $(-\infty, -9]$



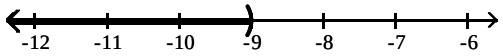
D) $\{y \mid y < -9\}$; $(-\infty, -9)$



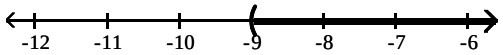
326) $20n - 10 \le 5(3n - 11)$ 326) _____



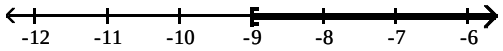
A) $\{n \mid n < -9\}$; $(-\infty, -9)$



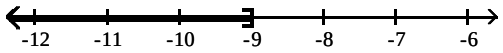
B) $\{n \mid n > -9\}$; $(-9, \infty)$



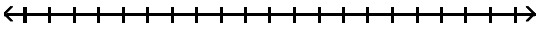
C) $\{n \mid n \ge -9\}$; $[-9, \infty)$



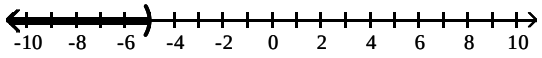
D) $\{n \mid n \le -9\}$; $(-\infty, -9]$



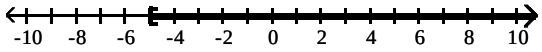
327) $\frac{2}{3}(2x - 1) < 6$ 327) _____



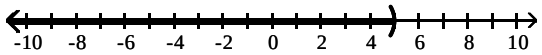
A) $\{x \mid x < -5\}$; $(-\infty, -5)$



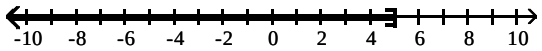
B) $\{x \mid x \ge -5\}$; $[-5, \infty)$



C) $\{x \mid x < 5\}$; $(-\infty, 5)$



D) $\{x \mid x \le 5\}$; $(-\infty, 5]$



Translate the sentence to an inequality.

328) A number is greater than -3. 328) _____

A) $x < -3$ B) $x \ge -3$ C) $x \le -3$ D) $x > -3$

329) A number is less than or equal to -4. 329) _____

A) $x > -4$ B) $x \ge -4$ C) $x < -4$ D) $x \le -4$

330) The number is at least 101. 330) _____

A) $x > 101$ B) $x < 101$ C) $x \le 101$ D) $x \ge 101$

331) The number was between 81 and 70. 331) _____

A) $x > 70$ B) $x < 81$ C) $70 < x < 81$ D) $81 < x < 70$

332) The number is no more than 968.71. 332) _____

A) $x < 968.71$ B) $x \geq 968.71$ C) $x > 968.71$ D) $x \leq 968.71$

333) The number will not exceed 4032. 333) _____

A) $x \leq 4032$ B) $x \geq 4032$ C) $x < 4032$ D) $x > 4032$

334) Two times a number less twenty-one must be more than thirty. 334) _____

A) $2x - 21 > 30$ B) $2(x - 21) > 30$ C) $2x - 21 \geq 30$ D) $2(x - 21) \geq 30$

335) Five times a number less than twenty-six must be more than fifty. 335) _____

A) $5x - 26 \geq 50$ B) $5x - 26 < 50$ C) $5(x - 26) \leq 50$ D) $26 - 5x > 50$

336) Negative two is greater than sixty less than nine times a number. 336) _____

A) $-2 + 60 < 9x$ B) $-2 > 60 - 9x$ C) $-2 > 9x - 60$ D) $-2 + 60 \leq 9x$

337) Four added to half of a number is at most seven. 337) _____

A) $\frac{1}{2}x + 4 \leq 7$ B) $\frac{1}{2}x + 4 > 7$ C) $\frac{1}{2}x + 4 < 7$ D) $\frac{1}{2}x + 4 \geq 7$

Solve the problem.

338) In order for a chemical reaction to take place, the Fahrenheit temperature of the reagents must be at least 130.21°F. Find the Celsius temperatures at which the reaction may occur. ($F = \frac{9}{5}C + 32$) 338) _____

A) $C \geq 54.56°$ B) $C \leq 54.56°$ C) $C \geq 266.38°$ D) $C < 266.38°$

339) In order for a chemical reaction to remain stable, its Celsius temperature must be no more than 126.5°C. Find the Fahrenheit temperatures at which the reaction will remain stable. ($F = \frac{9}{5}C + 32$) 339) _____

A) $F \leq 52.5°$ B) $F \geq 259.7°$ C) $F \leq 259.7°$ D) $F \geq 52.5°$

340) The equation $y = 0.004x + 0.10$ can be used to determine the approximate profit, y in dollars, of producing x items. How many items must be produced so the profit will be at least $2253? 340) _____

A) $x \geq 563{,}225$ B) $x \geq 563{,}275$ C) $0 < x \leq 563{,}224$ D) $x \leq 563{,}225$

341) If the formula $R = -0.037t + 50.1$ can be used to predict the world record in the 400-meter dash t years after 1925, for what years will the world records be 47.3 seconds or less? 341) _____

A) $t \geq 2001$ B) $t \geq 2000$ C) $t > 1976$ D) $t > 2002$

342) If the formula $P = 0.5643Y - 1092.57$ can be used to predict the average price of a theater ticket after 1945, for what years will the average theater ticket price be at least 42 dollars? (Y is the actual year.) 342) _____

A) $y \geq 2013$ B) $y > 2009$ C) $y \geq 2011$ D) $y > 2021$

343) Jim has gotten scores of 84 and 88 on his first two tests. What score must he get on his third test to keep an average of 90 or greater? 343) _____

A) $x \geq 98$ B) $x > 97$ C) $x = 86$ D) $x \geq 87.3$

Answer Key
Testname: UNTITLED2

1) A
2) A
3) A
4) B
5) B
6) A
7) A
8) D
9) D
10) C
11) D
12) D
13) B
14) A
15) D
16) A
17) D
18) A
19) B
20) D
21) A
22) B
23) C
24) C
25) D
26) A
27) D
28) A
29) A
30) A
31) A
32) B
33) B
34) A
35) B
36) A
37) A
38) D
39) C
40) A
41) C
42) C
43) D
44) D
45) B
46) C
47) A
48) D
49) B
50) C

51) D
52) D
53) C
54) D
55) D
56) A
57) D
58) C
59) C
60) A
61) D
62) C
63) B
64) B
65) C
66) D
67) D
68) B
69) A
70) D
71) B
72) C
73) D
74) D
75) D
76) A
77) D
78) A
79) B
80) C
81) B
82) C
83) D
84) B
85) C
86) B
87) B
88) B
89) B
90) D
91) B
92) B
93) C
94) D
95) D
96) A
97) A
98) A
99) D
100) B

101) A
102) C
103) C
104) A
105) In line 3/4; "10" on the left side of the equation should be "-10 ".
106) In line 2; "2 - x + 6" on the left side of the equation should be "2 - x - 6 ".
107) In line 3; "2 - 5" on the left side of the equation should be "14 - 5".
108) C
109) C
110) B
111) B
112) D
113) A
114) D
115) B
116) A
117) D
118) C
119) A
120) C
121) C
122) C
123) D
124) D
125) B
126) B
127) A
128) A
129) B
130) D
131) B
132) D
133) C
134) C
135) In line 5; "7" should have divided both sides of the equation and not subtracted from both sides of the equation.
136) In line 4; "$\frac{y}{1}$" should be replaced with "$\frac{1}{y}$" on the right side of the equation. Both sides of the equation should be multiplied by "$\frac{1}{y}$".
137) In line 3/4; "5a - 3" should be replaced with "5a - 1" on the left side of the equation.
138) In line 2; "4c - 1" should be replaced with "4c - 4" on the left side of the equation.
139) A
140) B
141) D
142) A
143) A
144) C
145) D
146) C

147) A
148) C
149) C
150) C
151) A
152) B
153) D
154) D
155) Mistake: Subtraction translated in reverse order.
Correct: $n - 4 = 80$
156) Mistake: Division translated in reverse order.
Correct: $n \div 8 = -70$
157) Mistake: Multiplied 10 times the unknown number instead of the difference, which requires parentheses.
Correct: $10(n - 3) = -20$
158) Mistake: Subtracted the unknown number instead of the sum, which requires parentheses.
Correct: $10n - (n + 2) = -30$
159) Mistake: "difference" was translated in reverse order.
Correct: $10(n + 3) = n - (n - 50)$
160) C
161) C
162) A
163) B
164) C
165) D
166) D
167) D
168) C
169) C
170) B
171) D
172) C
173) B
174) B
175) A
176) A
177) A
178) B
179) B
180) A
181) B
182) A
183) B
184) A
185) B
186) B
187) D
188) C
189) A
190) C
191) A

192) C
193) B
194) C
195) D
196) B
197) B
198) B
199) D
200) D
201) B
202) B
203) B
204) C
205) B
206) C
207) C
208) D
209) A
210) D
211) B
212) D
213) A
214) A
215) B
216) B
217) B
218) This proportion will not give him the correct answer because it is set up incorrectly. The numerators and denominators do not correspond. The correct proportion is $\frac{590}{6} = \frac{x}{8}$.
219) No. You cannot determine how long her hair will be by setting up a proportion because the ratio of age to hair length is not constant. She could, for example, cut or trim her hair. (Explanations may vary.)
220) B
221) B
222) B
223) A
224) A
225) D
226) B
227) C
228) C
229) A
230) A
231) D
232) A
233) A
234) B
235) B
236) A
237) D
238) B

239) A
240) B
241) A
242) D
243) B
244) C
245) A
246) B
247) B
248) B
249) C
250) D
251) D
252) C
253) D
254) D
255) C
256) C
257) C
258) A
259) B
260) D
261) C
262) B
263) A
264) B
265) D
266) A
267) C
268) C
269) A
270) B
271) C
272) B
273) C
274) A
275) B
276) D
277) A
278) A
279) D
280) C
281) A
282) C
283) D
284) C
285) A
286) C
287) B
288) A

289) D
290) D
291) This equation will not give her the correct answer. The correct equation is 15% × x = 86. Since there was a 15% increase from the original, unknown price (x), 15% should be multiplied by x, not by the dollar amount of the increase. (Explanations will vary.)
292) The item has not been restored to its original price. Its price is now lower than the original price. The amount of the increase was less than the amount of the discount since 20% of a smaller number (i.e., the sale price) is less than 20% of a larger number (i.e., the original price). For example, if the original price was $100, the sales price would be $80, and the final price would be $96. (Explanations will vary.)
293) It is better for Roberto to take his 20% discount first, since 20% of a larger number (x) is greater than 20% of a smaller number (x - 15). For example, if the original price of the jacket was $100, taking the 20% discount first would reduce the price to $80, and taking $15 off this would make the price $65. However, taking the $15 off first would reduce the price to $85, and taking 20% off this would make the price $68. (Explanations will vary.)
294) Neither. Juan's and Pete's final salaries are equal since (y × 110%) × 108% = (y × 108%) × 110%. For example, if the original salary of each is $100,000, Juan's first raise will give him a salary of $110,000, while his second raise will increase his salary to $118,800. Pete's first raise will give him a salary of $108,000, while his second raise will increase his salary to $118,800. (Explanations will vary.)
295) D
296) D
297) A
298) B
299) B
300) D
301) A
302) D
303) B
304) D
305) B
306) B
307) B
308) D
309) A
310) A
311) A
312) A
313) B
314) D
315) A
316) D
317) D
318) A
319) C
320) B
321) C
322) B
323) A
324) A
325) D
326) D
327) C

Answer Key
Testname: UNTITLED2

328) D
329) D
330) D
331) C
332) D
333) A
334) A
335) D
336) C
337) A
338) A
339) C
340) A
341) A
342) C
343) A

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