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

Evaluate the expression for the given values.

1) $8r + 5$ for $r = 4$ 1) _____

A) 37 B) 28 C) 32 D) 17

2) $7h + 4$ for $h = -9$ 2) _____

A) 2 B) -63 C) -59 D) -29

3) $\frac{12c}{4-c}$ for $c = 8$ 3) _____

A) 24 B) -24 C) -3 D) 3

4) $5m + 3n$ for $m = 0,\ n = 7$ 4) _____

A) 35 B) 26 C) 21 D) 56

5) $7g - 3h$ for $g = -8$ and $h = -3$ 5) _____

A) 65 B) -47 C) -44 D) 231

Write the product using exponents.

6) $2 \cdot 2 \cdot 2$ 6) _____

A) 8^3 B) 2^3 C) 3^2 D) 8

7) $a \cdot a \cdot a$ 7) _____

A) 3^a B) $3a$ C) a^2 D) a^3

8) $m \cdot m \cdot m \cdot m \cdot m \cdot p \cdot p \cdot p \cdot p \cdot p \cdot p$ 8) _____

A) $11mp$ B) mp^{11} C) mp^{30} D) m^5p^6

Evaluate the expression.

9) x^2 when $x = 10$ 9) _____

A) 100 B) 12 C) 1024 D) 20

10) a^2 when $a = -9$ 10) _____

A) -81 B) 18 C) 81 D) 512

11) $4c^2$ when $c = -11$ 11) _____

A) -88 B) 88 C) 1936 D) 484

12) $-4m^3$ when $m = 6$ 12) _____

A) 864 B) -864 C) 13,824 D) -13,824

List the terms and coefficients of the expression and identify the constant.

13) $-9a^4 - 4b^2 - c - 8$ 13) _____

A) Terms: $-9a^4$, $-4b^2$, -c; coefficients: 4, 2; constant -9

B) Terms: $-9a^4$, $-4b^2$, -c, -8; coefficients: -9, -4, 0; constant -8

C) Terms: $-9a^4$, $-4b^2$, -c; coefficients: 4, 2, 1; constant -9

D) Terms: $-9a^4$, $-4b^2$, -c, -8; coefficients: -9, -4, -1; constant -8

14) $-5x^5y^3 + 26x^4z^2 - 37x^3 + 22$ 14) _____

A) terms: $-5x^5y^3$, $26x^4z^2$, $-37x^3$, 22; coefficients: -5, 26, -37; constant 22

B) terms: $-5x^5y^3$, $26x^4z^2$, $-37x^3$, 22; coefficients: -5, 26, -37; constant -5

C) terms: $-5x^5y^3$, $26x^4z^2$, $-37x^3$; coefficients: -5, 26, -37; constant 22

D) terms: $-5x^5y^3$, $26x^4z^2$, $-37x^3$; coefficients: -5, 26, -37, 22; constant -5

List the terms and coefficients of the expression and identify the constant. Then, evaluate the expression for the given values of the variables.

15) $-7u^2 - 2u - 4$; $u = 5$ 15) _____

A) terms: $-7u^2$, $-2u$; coefficients: -7, -2, -4; constant -4; value of expression: 1211

B) terms: $-7u^2$, $-2u$, -4; coefficients: -7, -2; constant -4; value of expression: -189

C) terms: $-7u^2$, $-2u$, -4; coefficients: -7, -2; constant -4; value of expression: 1211

D) terms: $-7u^2$, $-2u$; coefficients: -7, -2, -4; constant -4; value of expression: -189

16) $m^3 - mn - 8n^2$; $m = -4$, $n = -2$ 16) _____

A) terms: m^3, -mn, $-8n^2$; coefficients: -8; constant: -8; value of expression -40

B) terms: m^3, -mn, $-8n^2$; coefficients: 1, -1, -8; constant: 0; value of expression -40

C) terms: m^3, -mn, $-8n^2$; coefficients: 1, -1, -8; constant: 0; value of expression -104

D) terms: m^3, -mn, $-8n^2$; coefficients: -8; constant: -8; value of expression -104

Use the commutative property to rewrite the expression.

17) $6 + a$ 17) _____

A) $6 + a + 0$ B) $6a$ C) $a + 6$ D) $(1 + 5)a$

18) $b \cdot 8$ 18) _____

A) b^8 B) $b \cdot 8 \cdot 1$ or $b8$ C) $8 \cdot b$ or $8b$ D) $8 + b$

Use the associative property to rewrite the expression, then simplify.

19) $(k + 19) + 2$ 19) _____

A) $k + (19 + 2) = k + 21$ B) $2 + (k + 19)$

C) $k + (19 + 2) = k + 21 = 21k$ D) $k + 2 + 19 + 2 = k + 23$

20) $-3(11m)$ 20) _____

A) $(11 - 3)m = 8m$ B) $(-3)(11) \cdot (-3)m = 99m$

C) $(-3 \cdot 11)m = -33m$ D) $(11m)(-3)$

Rewrite the expression using the distributive property.

21) $10(d + 12)$ 21) _____

A) $120d$ B) $22d$ C) $10d + 12$ D) $10d + 120$

22) $-4(r + 6)$ 22) _____

A) $2r$ B) $-4r - 24$ C) $-24r$ D) $-4r + 6$

23) $-4(-3x - 10)$ 23) _____

A) $12x + 40$ B) $-3x + 40$ C) $12x - 10$ D) $52x$

24) $-(p - 29)$ 24) _____

A) $p + 29$ B) $-p + 29$ C) $-p - 29$ D) $p - 29$

Determine whether the following groups of terms are like terms.

25) $2m, 2n, 8$ 25) _____

A) no B) yes

26) $3r, -r^3, 3r^2$ 26) _____

A) no B) yes

27) $-7w, 12w, -w, 5w$ 27) _____

A) no B) yes

Combine like terms.

28) $2r + 11r$ 28) _____

A) $13r$ B) $22r$ C) $9r$ D) $13r^2$

29) $-d + 17d$ 29) _____

A) $16d$ B) $-17d^2$ C) $18d$ D) $-17d$

30) $2a + 2 - 9a + 1$ 30) _____

A) $-7a + 1$ B) $7a + 3$ C) $-7a + 3$ D) $-7a^2 + 3$

31) $-19p - 8p + 4 + 7 + p - 5$ 31) _____

A) $-26p + 6$ B) $-10p + 6$ C) $28p + 17$ D) $28p + 6$

32) $x^2 + 7x - 10 - 12x^2 - x - 12$ 32) _____

A) $-13x^2 - 6x + 22$ B) $-13x^4 - 6x^2 + 22$

C) $-11x^2 + 6x - 22$ D) $-11x^4 + 6x^2 - 22$

Identify the following as either an expression, an equation, or neither.

33) $9x^2 + 6x - 6$ 33) _____

A) neither B) equation C) expression

34) $-4a + 7 = -1$ 34) _____

A) equation B) neither C) expression

Which of the following are linear equations in one variable?

35) I. $y^2 + 5y + 5 = 0$; II. $\frac{1}{5}w - 4(6w + 1) = 6$; III. $3m - 2 + 4m + 6$ 35) _____

A) II B) III C) I D) II and III

Determine whether the given number is a solution to the equation.

36) $9y + 4 = 40$; -4 36) _____

A) no B) yes

37) $10t + 4 = -36$; -4 37) _____

A) yes B) no

Solve the equation.

38) $z - 8 = -10$ 38) _____

A) $z = 18$ B) $z = -2$ C) $z = 2$ D) $z = -18$

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

39) $c - 27 = -24$ 39) _____

40) $x + 9 = -1$ 40) _____

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

41) $26 = r + 5$ 41) _____

A) $r = 21$ B) $r = -31$ C) $r = -21$ D) $r = 31$

42) $10p = 90$ 42) _____

A) $p = 100$ B) $p = 900$ C) $p = 9$ D) $p = 80$

43) $-3x = 18$ 43) _____

A) $x = -6$ B) $x = 6$ C) $x = 15$ D) $x = 21$

44) $-40 = 8m$ 44) _____

A) $m = -32$ B) $m = -48$ C) $m = -5$ D) $m = 48$

45) $6 = -v$ 45) _____

A) $m = 7$ B) $m = -6$ C) $m = 6$ D) $m = 5$

46) $3x + 8 = 2$ 46) _____

A) $x = 0$ B) $x = 2$ C) $x = 3$ D) $x = -2$

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

47) $5k - 13 = -28$ 47) _____

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

48) $21 = 3y + 3$ 48) _____

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

49) $-12 = 3 - 3w$ 49) _____

A) $r = 5$ B) -3 C) $r = -5$ D) 3

50) $8x - 7x + 9 = 10 - 8$ 50) _____

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

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

51) $2(-1 - 3m) = -2$ 51) _____

52) $-4(2y + 3) + 4 = 0$ 52) _____

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

53) $-6 + 2b - 3 - 2b + b = -13$ 53) _____

A) $b = -13$ B) $b = -22$ C) $b = 13$ D) $b = -4$

54) $-6(w - 3) + 5(w + 2) = 31$ 54) _____

A) -15 B) 15 C) $w = 3$ D) $w = -3$

55) $-8x - 5 = -3x - 10$ 55) _____

A) $x = 1$ B) $x = -1$ C) $x = -3$ D) $x = 3$

56) $-7y + 7 + y = -4y + 17$ 56) _____

A) $y = 12$ B) $y = -5$ C) $y = -12$ D) $y = 5$

57) $2(4r + 19) - 84 = 86 - 3(5r - 2)$ 57) _____

A) $r = 0$ B) $r = 2$ C) $r = 6$ D) $r = 5$

58) $-2 - (-2w + 1) + 6w = 3(2w + 5)$ 58) _____

A) $w = 8$ B) $w = -8$ C) $w = 9$ D) $w = 0$

59) $3(5h - 4) + 4(h + 5) = -h + 2(h + 1) + 6$ 59) _____

A) $h = 2$ B) $h = -4$ C) $h = 5$ D) $h = 0$

Determine whether the key words indicate addition, subtraction, multiplication, or division.

60) more than 60) _____

A) multiplication B) division C) addition D) subtraction

Write a mathematical expression and simplify, if possible. Use x to represent the unknown quantity.

61) Sixteen more than a number 61) _____

A) $x - 16$ B) $x + 16$ C) $16x + 16$ D) $16x$

62) Eleven less than a number 62) _____

A) $11x - 11$ B) $x - 11$ C) $x + 11$ D) $11x$

63) A number increased by twenty-one 63) _____

A) $x + 21$ B) $x - 21$ C) $21x$ D) $21x + 21$

64) Sixteen more than twice a number 64) _____

A) $2(x + 16)$ B) $32x$ C) $x + 32$ D) $2x + 16$

65) 4 subtracted from the quotient of a number and 7 65) _____

A) $\frac{x}{4} - 7$ B) $\frac{7}{x} - 4$ C) $\frac{x}{7} - 4$ D) $4 - \frac{x}{7}$

66) The sum of a number and five times the number 66) _____

A) $x + 5x$; $6x$ B) $5x - 5$ C) $1 + 5x$ D) $x - 5x$; $-4x$

Write the statement as an equation, and find the number. Let x represent the number.

67) Twelve more than a number is thirty-nine. 67) _____

A) $x + 39 = 12$; -27 B) $x + 12 = 39$; 51

C) $x + 12 = 39$; 27 D) $12x = 39$; $\frac{13}{4}$

68) Thirteen less than a number is nineteen. 68) _____

A) $x + 19 = 13$; 32 B) $x - 13 = 19$; 32

C) $x - 13 = 19$; 6 D) $13 - x = 19$; -6

69) Seventeen more than twice a number is three. 69) _____

A) $2x + 3 = 17$; 7 B) $2x - 17 = 3$; -7

C) $2x + 17 = 3$; 10 D) $2x + 17 = 3$; -7

70) Fifteen subtracted from twice a number is -3. 70) _____

A) $2x + 15 = -3$; 9 B) $2x - 15 = -3$; 9

C) $2x - 15 = -3$; 6 D) $2x - 3 = 15$; 6

71) Nine less than three times a number is the same as the number increased by nineteen. 71) _____

A) $3 - 9x = x + 19$; 3.3 B) $3x - 9 = x + 19$; 14

C) $3 - 9x = x + 19$; 14 D) $3x - 9 = x + 19$; 3.3

Answer the question.

72) Wanda's income is $5330 more than Pat's annual income. Find Pat's income if Wanda's income is $39,420. 72) _____

A) $34,190 B) $44,750 C) $28,760 D) $34,090

73) A rectangular throw rug has an area of 1248 in^2. Find the width if it is 48 in. long. 73) _____

A) 24 in. B) 26 in. C) 35 in. D) 13 in.

74) Dema is twice as old as Kandra. If Dema is 44 years old, how old is Kandra? 74) _____

A) 42 years old B) 22 years old C) 88 years old D) 11 years old

75) The area of a city public pool is approximately 312 sq ft more than 26 times the area of the Adam's back yard pool. Find the area of the back yard pool if the area of the public pool has an area of 13,260 sq ft. 75) _____

A) 498 sq ft B) 794 sq ft C) 555 sq ft D) 529 sq ft

76) On Tuesday, a truck driver travels 123 mi less than she traveled on Monday. If the distance travelled on Monday was 936 mi, what is the distance traveled on Tuesday? 76) _____

A) 1059 mi B) 803 miles C) 936 miles D) 813 mi

77) The number of men in the room is 9 more than the number of women in the room. If there are n women in the room, write an expression for the number of men in the room. 77) _____

A) $\frac{n}{9}$ B) $9n$ C) $n + 9$ D) $n - 9$

78) Marcus made $23 more than three times Joel's weekly salary. If x represents Joel's weekly salary, write an expression for Marcus' weekly salary. 78) _____

A) $23(3 + x)$ B) $3x + 23$ C) $3(x + 23)$ D) $23x + 3$

79) Pat needs to bring 216 cookies to her friend's party. She has already baked x cookies. Write an algebraic expression for the number of cookies Pat still needs to bake. 79) _____

A) $216 - x$ B) $216 + x$ C) $x - 216$ D) $\frac{216}{x}$

80) An x-ray technician took a total of 104 images of shoulders and knees. The number of shoulder x-rays was 6 fewer than the knee x-rays. How many knee x-rays were there? 80) _____

A) 52 knee x-rays B) 98 knee x-rays
C) 49 knee x-rays D) 55 knee x-rays

81) A farmer plants soybeans and corn on his 510 acres of land. He plants twice as many acres with soybeans as with corn. How many acres are planted with corn? 81) _____

A) 170 acres B) 510 acres C) 340 acres D) 255 acres

82) A gold pass to an amusment park is $30 more than twice the cost of a regular pass. If the total cost of one gold pass and one regular pass is $285, how much does a gold pass cost? 82) _____

A) $85 B) $100 C) $200 D) $185

83) A 66 in long wire will be cut into two pieces so that one piece is twice as long as the other. Find the length of the longer piece. 83) _____

A) 16.5 in B) 49.5 in C) 22 in D) 44 in

84) A triangle has a perimeter of 52.3 cm. One side is 23.1 cm. long. Of the two remaining sides, one side is three times as long as than the other. How long is the shorter of the remaining sides? 84) _____

A) 5.5 cm B) 7.3 cm C) 21.9 cm D) 16.5 cm

85) A rectangular garden plot is twice as long as it is wide. Its perimeter is 72 ft. What is the length of the garden? 85) _____

A) 22 ft B) 24 ft C) 14 ft D) 12 ft

86) A 44-inch pipe must be cut into three pieces. The longest piece will be twice as long as the shortest piece, and the medium-sized piece will be 4 inches longer than the shortest piece. Find the length of shortest piece of pipe. 86) _____

A) 10 inches B) 14 inches C) 20 inches D) 6 inches