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

For the given expression, identify the terms and the numerical coefficients.

1) $-5x^4 + x^2 - x - 4 - 3x^2$

A) Constant terms: -5, -4, -3
Variable terms: x^4, x^2, x
Coefficients: -5, 1, -1, -3

B) Constant terms: -4
Variable terms: $-5x^4, x^2, -x, -3x^2$
Coefficients: -5, -4, -3

C) Constant terms: -5, -4, -3
Variable terms: x^4, x^2, x
Coefficients: -5, -4, -3

D) Constant terms: -4
Variable terms: $-5x^4, x^2, -x, -3x^2$
Coefficients: -5, 1, -1, -4, -3

Answer: D

2) $-\frac{2}{3}m + \frac{1}{2}n + \frac{5}{6}m + \frac{4}{3}n$

A) Constant terms: $-\frac{2}{3}, —, —, —$
Variable terms: m, n
Coefficients: $-\frac{2}{3}, —, —, —$

B) Constant terms: None
Variable terms: $-\frac{2}{3}m, —n, —m, —n$
Coefficients: $-\frac{2}{3}, —, —, —$

C) Constant terms: $-\frac{2}{3}, —, —, —$
Variable terms: m, n, m, n
Coefficients: $-\frac{2}{3}, —, —, —$

D) Constant terms: $-\frac{2}{3}, —, —, —$
Variable terms: $-\frac{2}{3}m, —n, —m, —n$
Coefficients: $-\frac{2}{3}, —, —, —$

Answer: B

3) 3x(y+8) - 2(y+8)

A) Constant terms: 8, -2
Variable terms: 3xy, -2y
Coefficients: 3, -2

B) Constant terms: -2
Variable terms: x, (y+8)
Coefficients: , -2

C) Constant terms: None
Variable terms: 3x, 3(y+8), -2(y+8)
Coefficients: 3, -2

D) Constant terms: None
Variable terms: 3x(y+8), -2(y+8)
Coefficients: 3, -2

Answer: D

4) $x^2 - y^2 + 2xy + 6$

A) Constant terms: , -6
Variable terms: x^2 , $-y^2$, xy
Coefficients:

B) Constant terms:
Variable terms: x^2 , $-y^2$, xy
Coefficients: 1, -1, ,

C) Constant terms:
Variable terms: x^2 , y^2 , x, y
Coefficients: 1, -1, ,

D) Constant terms: ,
Variable terms: x^2 , y^2 , xy
Coefficients:

Answer: B

Determine whether the terms are like or unlike.

5) 13z, -8z

A) like

B) unlike

Answer: A

6) $12a^9, 12a^7$

A) like B) unlike

Answer: B

7) 7m, 6m, -3m

A) like B) unlike

Answer: A

8) 8b, 11, 13a

A) like B) unlike

Answer: B

9) $8xy^3z, -20xy^2$

A) like B) unlike

Answer: B

10) ab, 13ba

A) like B) unlike

Answer: A

11) 6, 2, -9

A) like B) unlike

Answer: A

Simplify.

12) 8a - 2a + 6

A) -6a + 6 B) 12a C) 6a + 6 D) 10a + 6

Answer: C

13) -3b + 6b

A) -9b B) b^2 C) b D) -3b

Answer: C

14) -8y - 6y

A) 14y B) -14y C) -2y D) $-14y^2$

Answer: B

15) -5y + 1 - 7 + 7 + y - 1

A) -6y B) -6y + 1 C) -4y D) -4y - 1

Answer: C

16) $-2x^8 - 3x^8$

A) $-5x^{64}$ B) $-5x^{16}$ C) $-5x^8$ D) $-6x^8$

Answer: C

17) -0.5x - 0.9x - 0.7x

A) -0.5x - 0.9x - 0.7x B) -2.6x C) -2.1x D) -9x

Answer: C

18) $-2y^5 - 8y^5$

A) $6y^5$ B) $-2y^5 - 8y^5$ C) $-10y^{10}$ D) $-10y^5$

Answer: D

19) $8z + 6 - 2z + 3$

A) $15z$ B) $10z + 9$ C) $6z + 3$ D) $6z + 9$

Answer: D

20) $5.9k - 1.3 - 3.5k + 6 + 2.1k$

A) $11.5k + 4.7$ B) $4.5k + 4.7$ C) $4.5k - 4.7$ D) $4.5k + 7.3$

Answer: B

21) $-\frac{1}{2}x + \frac{3}{4} - \frac{3}{4}x$

A) $-\frac{1}{2}x$ B) $\frac{1}{4}x - \frac{3}{4}$ C) $—x + \frac{3}{4}$ D) $-\frac{5}{4}x + \frac{3}{4}$

Answer: D

22) $-\frac{2}{3}x + \frac{3}{7} + \frac{3}{7}x - 5$

A) $——x - \frac{32}{7}$ B) $-\frac{5}{21}x - \frac{32}{7}$ C) $-\frac{5}{21}x + \frac{38}{7}$ D) $-\frac{23}{21}x - \frac{32}{7}$

Answer: B

23) $\frac{2}{3}x + \frac{3}{4} + (-\frac{3}{4}x) + \frac{1}{8}$

A) $-\frac{1}{12}x + \frac{7}{8}$ B) $-\frac{1}{12}x + \frac{3}{32}$ C) $\frac{17}{12}x + \frac{7}{8}$ D) $-\frac{1}{2}x + \frac{3}{32}$

Answer: A

24) $—x + \frac{3}{5} + \frac{3}{5}x + \frac{1}{8}$

A) $-\frac{1}{10}x + \frac{29}{40}$ B) $—x + \frac{3}{40}$ C) $——x + \frac{29}{40}$ D) $——x + \frac{3}{40}$

Answer: C

25) $-\frac{3}{4}x - \frac{11}{12}y + \frac{5}{4}x - \frac{1}{6}y - \frac{1}{2}x + \frac{13}{12}y$

A) $\frac{11}{12}x + \frac{11}{12}y$ B) $\frac{11}{12}x + \frac{3}{4}y$ C) $\frac{13}{12}x + \frac{11}{12}y$ D) 0

Answer: D

Use the distributive property to remove parentheses.

26) $-7(a + x)$

A) $-7a - 7x$ B) $-7a + x$ C) $-7a + 7x$ D) $-7ax$

Answer: A

27) 6(3n + 4)

A) 9n + 10 B) 42n C) 18n + 24 D) 18n + 4

Answer: C

28) -8(10n + 3)

A) -80n + 3 B) n - 5 C) -104n D) -80n - 24

Answer: D

29) $\frac{1}{3}(9x - 6)$

A) 27x - 18 B) 3x - 6 C) x D) 3x - 2

Answer: D

30) 9(5x + 5y + 2)

A) 45x + 45y + 2 B) 45x + 5y + 18 C) 45x + 45y + 18 D) 45x + 5y + 2

Answer: C

31) $-\frac{4}{3}(3y + 3x - 3z)$

A) -4y + 4x + 4z B) -4y + 3x - 3z C) -4y - 4x - 4z D) -4y - 4x + 4z

Answer: D

32) 0.3(3x + 0.4)

A) 0.9x + 0.12 B) 3.3x + 0.7 C) 0.9x + 0.4 D) 10x + 0.12

Answer: A

33) 1.4(3.2x - 4.5y + 3.4)

A) 4.6x - 3.1y + 4.8 B) 2.29x - 3.21y + 2.43 C) 4.48x - 4.5y + 3.4 D) 4.48x - 6.3y + 4.76

Answer: D

34) - (6x + 9y)

A) -6x - 9y B) -6x + 9y C) 6x + 9y D) 6x - 9y

Answer: A

35) (-5m + 9n - 9p)

A) -5m + 9n - 9p B) 5m - 9n + 9p C) -5m + 9n + 9p D) 5m - 9n - 9p

Answer: A

Simplify.

36) -3(9r + 7) + 5(9r + 10)

A) 18r + 7 B) r + 4 C) -48r D) 18r + 29

Answer: D

37) -6(3r + 5) + 8(8r + 2)

A) -48r B) 46r - 14 C) 46r + 5 D) -3r - 1

Answer: B

38) $-8 + 9(14 - 6m)$

A) $118 - 54m$ B) $118 - 6m$ C) $126 - 54m$ D) $118 + 54m$

Answer: A

39) $-6(2x - 8) - 4x + 6$

A) $-16x - 42$ B) $8x + 54$ C) $16x + 54$ D) $-16x + 54$

Answer: D

40) $-2(10r + 7) + 8(2r + 9)$

A) $-4r + 7$ B) $8r + 5$ C) $-4r + 58$ D) $-34r$

Answer: C

41) $-2x - 4(x - 5y)$

A) $-6x - 5y$ B) $-3x + 20y$ C) $-6x - 20y$ D) $-6x + 20y$

Answer: D

42) $-\left(\frac{6}{7}x - \frac{1}{9}\right) + 2x$

A) $\frac{20}{7}x + \frac{1}{9}$ B) $\frac{79}{63}x$ C) $\frac{8}{7}x + \frac{1}{9}$ D) $-\frac{4}{7}x - \frac{1}{9}$

Answer: C

43) $0.3 - 0.3(y + 5) + 0.8 - 2$

A) $-0.3y - 2.4$ B) $y + 1.6$ C) $0.3y + 0.6$ D) $-0.3y - 5.9$

Answer: A

Identify the equation as linear or nonlinear.

44) $5x - 9y = 1$

A) nonlinear B) linear

Answer: B

45) $y = -3x + 8$

A) nonlinear B) linear

Answer: B

46) $y = x^3 - 8$

A) nonlinear B) linear

Answer: A

47) $y - x =$

A) linear B) nonlinear

Answer: A

Solve the problem.

48) Is $p = 5$ a solution of $p + 7 = 12$?

A) Yes B) No

Answer: A

49) Is $x = 9$ a solution of $x - 7 = 2$?

A) Yes B) No

Answer: A

50) Is $x = 7$ a solution of $3x + 3 = 26$?

A) Yes B) No

Answer: B

51) Is $y = 6$ a solution of $2y + 4(y - 4) = 20$?

A) Yes B) No

Answer: A

52) Is $x = 3$ a solution of $6x + 7x - 3 = 36$?

A) Yes B) No

Answer: A

53) Is $k = 1$ a solution of $3k - 5 = 2k - 6$?

A) Yes B) No

Answer: B

54) Is $z = \frac{13}{2}$ a solution of $-(z - 9) - (z - 1) = 2z - 16$?

A) Yes B) No

Answer: A

Determine whether the given equations are equivalent equations.

55) $3x - 5 = 7$, $3x = 12$, $x = 4$

A) Equivalent equations B) Not equivalent equations

Answer: A

56) $3x + 5 = 7$, $3x = 12$, $x = 4$

A) Equivalent equations B) Not equivalent equations

Answer: B

Solve the equation and check your solution.

57) $x - 18 = -5$

A) $x = 13$ B) $x = 23$ C) $x = -23$ D) $x = -13$

Answer: A

58) $-11 = x - 13$

A) $x = -24$ B) $x = 24$ C) $x = 2$ D) $x = -2$

Answer: C

59) $t - 8 = 10$

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

Answer: D

60) 7.6 + x = 14.9

A) x = 22.5 B) x = 22 C) x = 6.8 D) x = 7.3

Answer: D

61) -1.1 + x = 12

A) x = 10.4 B) x = 10.9 C) x = 12.6 D) x = 13.1

Answer: D

62) 7.1 + x = 12.9

A) x = 5.8 B) x = 19.5 C) x = 5.3 D) x = 20

Answer: A

63) = 20 - x

A) x = 19.4 B) x = 20.1 C) x = 19.9 D) x = 19.6

Answer: C

64) 7.8 = 21.9 - x

A) x = 14.1 B) x = 29.2 C) x = 29.7 D) x = 13.6

Answer: A

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

65) There are no exercises for this objective.

Answer:

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

Find the reciprocal.

66) 20

A) $\frac{1}{20}$ B) 1 C) $-\frac{1}{20}$ D) -20

Answer: A

67) $\frac{1}{9}$

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

Answer: A

68) $\frac{7}{8}$

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

Answer: C

69) $\frac{7}{4}$

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

Answer: A

Solve the equation and check your solution.

70) —x =

A) x = B) x = C) x = D) x =

Answer: C

71) ——a = 0

A) a = -16 B) a = 0 C) a = D) a = 1

Answer: B

72) $\frac{n}{4} = 10$

A) n = 40 B) n = 2 C) n = 13 D) n = 14

Answer: A

73) -7a = 56

A) a = -8 B) a = 1 C) a = D) a = -63

Answer: A

74) -7x = -42

A) x = 6 B) x = 35 C) x = -35 D) x = 2

Answer: A

75) —t = —

A) t = $\frac{32}{7}$ B) t = $\frac{7}{32}$ C) t = $-\frac{7}{32}$ D) t = $\frac{7}{8}$

Answer: B

76) $\frac{n}{3} = 9$

A) n = 3 B) n = 27 C) n = 12 D) n = 11

Answer: B

77) $-\frac{1}{9}k = \frac{4}{9}$

A) k = -4 B) k = 8 C) k = 7 D) k = -9

Answer: A

78) $\frac{x}{4} = 10$

A) x = 14 B) x = 40 C) x = 2 D) x = 13

Answer: B

79) x = -36

A) x = 1 B) x = C) x = -9 D) x = -40

Answer: C

80) -64.0 = -8.0x

A) x = -56 B) x = 8 C) x = 56 D) x = 2

Answer: B

81) -8x = -64

A) x = 56 B) x = 8 C) x = 2 D) x = -56

Answer: B

82) $\frac{3}{8}x = \frac{4}{9}$

A) x = ⁄ B) x = $-\frac{32}{27}$ C) x = ⁄ D) x = $-\frac{32}{9}$

Answer: C

83) -12.9 = -4.3x

A) x = -8.6 B) x = 8.6 C) x = 2 D) x = 3

Answer: D

84) -4.65 = 1.55v

A) v = -7.21 B) v = -3 C) v = $-\frac{1}{3}$ D) v = 3

Answer: B

85) -y = 3

A) y = -1 B) y = -3 C) y = 3 D) y = 0

Answer: B

86) -x = $-\frac{3}{2}$

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

Answer: D

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

87) There are no exercises for this objective.

Answer:

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

Solve the equation.

88) $5x - (3x - 1) = 2$

A) $x = \frac{1}{8}$ B) $x = -\frac{1}{2}$ C) $x = \frac{1}{2}$ D) $x = -\frac{1}{8}$

Answer: C

89) $8r + 7 = 39$

A) $r = 28$ B) $r = 24$ C) $r = 2$ D) $r = 4$

Answer: D

90) $6n - 3 = 15$

A) $n = 12$ B) $n = 5$ C) $n = 16$ D) $n = 3$

Answer: D

91) $= x + 9$

A) $x = 6$ B) $x =$ C) $x = 1$ D) $x =$

Answer: A

92) $6(k + 2) - (5k + 5) = 8$

A) $k =$ B) $k = 15$ C) $k = -1$ D) $k = -11$

Answer: A

93) $7x - (2x - 1) = 2$

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

Answer: B

94) $3(4x - 1) = 12$

A) $\frac{5}{4}$ B) $\frac{3}{4}$ C) $\frac{11}{12}$ D) $\frac{13}{12}$

Answer: A

95) $x - 5(2x + 1) = 40$

A) $x = -\frac{35}{9}$ B) $x = -\frac{41}{9}$ C) $x = -5$ D) $x = -\frac{7}{3}$

Answer: C

96) $3x - 5x + 12x = -74$

A) $x = -84$ B) $x = -0.1$ C) $x = -18.5$ D) $x = -7.4$

Answer: D

97) $\frac{a}{4} - \frac{1}{4} = -6$

A) $a = 23$ B) $a = -25$ C) $a = -23$ D) $a = 25$

Answer: C

98) $0.70x - 0.50(80 + x) = -0.35(80)$

A) $x = 50$ B) $x = 70$ C) $x = 60$ D) $x = 30$

Answer: C

99) $\frac{f}{6} - 4 = 1$

A) $f = -18$ B) $f = -30$ C) $f = 18$ D) $f = 30$

Answer: D

100) $\frac{2x}{5} - \frac{x}{3} = 2$

A) $x = 30$ B) $x = -30$ C) $x = -60$ D) $x = 60$

Answer: A

101) $\frac{b}{13} - 7 = -3$

A) $b = 54$ B) $b = 52$ C) $b = -52$ D) $b = -54$

Answer: B

102) $24.4 = -28.9 - n$

A) $n = 4.5$ B) $n = 53.3$ C) $n = -53.3$ D) $n = -4.5$

Answer: C

103) $5.35 - 4.53x - 1.2x = 24.259$

A) $x = -5.17$ B) $x = 7.28$ C) $x = 4.3$ D) $x = -3.3$

Answer: D

104) $\frac{1}{12} = \frac{1}{3}(t - 5)$

A) $t = \frac{21}{4}$ B) $t = \frac{2}{3}$ C) $t = -\frac{19}{4}$ D) $t = \frac{61}{12}$

Answer: A

105) $4(y + 7) = 5(y - 4)$

A) $y = -48$ B) $y = 8$ C) $y = 48$ D) $y = -8$

Answer: C

106) $-5x + 6(-3x - 4) = -42 - 5x$

A) $x = \frac{33}{14}$ B) $x = \frac{11}{3}$ C) $x = 1$ D) $x = -1$

Answer: C

107) $(y - 8) - (y + 2) = 5y$

A) $y = -\frac{3}{5}$ B) $y = -\frac{5}{3}$ C) $y = -\frac{5}{4}$ D) $y = -2$

Answer: D

108) $4p = 8(7p + 5)$

A) $p = 10$ B) $p = \frac{13}{10}$ C) $p = \frac{10}{13}$ D) $p = -\frac{10}{13}$

Answer: D

109) $13(3c - 4) = 4c - 4$

A) $c = \frac{48}{43}$ B) $c = \frac{8}{5}$ C) $c = -\frac{48}{35}$ D) $c = \frac{48}{35}$

Answer: D

110) $5(y + 7) = 6(y - 6)$

A) $y = -1$ B) $y = -71$ C) $y = 71$ D) $y =$

Answer: C

111) $4(2z - 3) = 7(z + 3)$

A) $z = 33$ B) $z = 13$ C) $z = 9$ D) $z = -9$

Answer: A

112) $3p = 7(3p + 4)$

A) $p = \frac{9}{14}$ B) $p = -\frac{14}{9}$ C) $p = \frac{28}{3}$ D) $p = \frac{14}{9}$

Answer: B

113) $2(2z - 5) = 3(z + 5)$

A) $z = 25$ B) $z = 5$ C) $z = 7$ D) $z = -5$

Answer: A

114) $-4x + 4(2x - 6) = -15 - 5x$

A) $x = -\frac{13}{3}$ B) $x = 1$ C) $x = -1$ D) $x = 39$

Answer: B

115) $\frac{r + 6}{3} = \frac{r + 8}{6}$

A) $r = -12$ B) $r = -4$ C) $r = 4$ D) $r = 3$

Answer: B

116) $\frac{3(y - 2)}{5} = 1 - 3y$

A) $y = \frac{7}{6}$ B) $y = -\frac{11}{18}$ C) $y = \frac{11}{18}$ D) $y = \frac{11}{6}$

Answer: C

117) $-0.02y + 0.13(1100 - y) = 0.10y$

A) $y = 35.75$ B) $y = 357.5$ C) $y = 1144$ D) $y = 572$

Answer: D

118) $0.25(40) + 0.80x = 0.60(40 + x)$

A) $x = 80$ B) $x = 70$ C) $x = 35$ D) $x = 60$

Answer: B

119) $\frac{2x}{5} = \frac{x}{3} + 3$

A) $x = 45$ B) $x = -45$ C) $x = -90$ D) $x = 90$

Answer: A

120) $\frac{r}{5} + \frac{6}{5} = \frac{r}{7} + \frac{8}{7}$

A) $r = 2$ B) $r = 1$ C) $r = -2$ D) $r = -1$

Answer: D

121) $\frac{7}{3} - \frac{x}{3} = \frac{x}{4}$

A) $x = -4$ B) $x = 4$ C) $x = 7$ D) $x = \frac{28}{5}$

Answer: B

122) $\frac{y}{5} - \frac{2}{5} = \frac{1}{3} - y$

A) $y = \frac{7}{6}$ B) $y = \frac{11}{18}$ C) $y = -\frac{11}{18}$ D) $y = \frac{11}{6}$

Answer: B

123) $m + 1.2 - 2.3m = -3.5 + 5.4m + 4.7$

A) no solution B) $m = -0.5$ C) $m = 0$ D) all real numbers

Answer: D

124) $5x - 8 - 8x - 7 = 6x - 9x - 18$

A) $x = 0$ B) no solution C) all real numbers D) $x = -256$

Answer: B

125) $7(x + 7) = (7x + 49)$

A) $x = 0$ B) all real numbers C) no solution D) $x = 98$

Answer: B

126) $3(x + 5) - (3x + 15) = 0$

A) all real numbers B) $x = 0$ C) no solution D) $x = 5$

Answer: A

127) $\frac{1}{3}(6x - 9) = 6\left(\frac{1}{3}x - \frac{1}{2}\right) + 6$

A) $x = 0$ B) all real numbers C) no solution D) $x = \frac{3}{2}$

Answer: C

128) $\frac{x}{9} - 4 = \frac{x}{9}$

A) all real numbers B) no solution C) x = 0 D) x = 18

Answer: B

Use the simple interest formula.

129) Kevin invested part of his $10,000 bonus in a certificate of deposit that paid 6% annual simple interest, and the remainder in a mutual fund that paid 11% annual simple interest. If his total interest for that year was $700, how much did Kevin invest in the mutual fund?

A) $2000 B) $3000 C) $8000 D) $1000

Answer: A

130) How can $56,000 be invested, part at 4% annual simple interest and the remainder at 10% annual simple interest, so that the interest earned by the two accounts is equal at the end of the year?

A) $16,000 invested at 4%; $40,000 invested at 10% B) $26,000 invested at 4%; $30,000 invested at 10%
C) $40,000 invested at 4%; $16,000 invested at 10% D) $30,000 invested at 4%; $26,000 invested at 10%

Answer: C

131) Melissa invested a sum of money at 3% annual simple interest. She invested three times that sum at 5% annual simple interest. If her total yearly interest from both investments was $5400, how much was invested at 3%?

A) $30,000 B) $67,500 C) $22,500 D) $202,500

Answer: A

132) If $2000 is invested at 10% simple annual interest, how much should be invested at 12% annual simple interest so that the total yearly income from both investments is $5000?

A) $40,000 B) $4000 C) $4760 D) $47,600

Answer: A

133) Alice invested some money at 11% simple interest. At the end of the year the total amount of her original principal and the interest was $9768. How much did she originally invest?

A) $968 B) $107,448 C) $888 D) $8800

Answer: D

134) Find the interest on $4800 borrowed at an interest rate of 4% for one year.

A) $1920 B) $192 C) $4992 D) $1200

Answer: B

Use the distance formula.

135) A contestant in a 20-mile race finished in 5 hours. What was her average rate during the race? (Round to the nearest tenth, if necessary.)

A) 15 mph B) 100 mph C) 0.3 mph D) 4.0 mph

Answer: D

136) How long would it take to drive 1500 kilometers if your average rate of speed was 100 kilometers per hour?

A) 1500 hr B) 16 hr C) 160 hr D) 15 hr

Answer: D

137) Ashley drove home from school for Thanksgiving. She traveled 112 miles in 2 hours. What was her average speed?

A) 53 mph B) 110 mph C) 56 mph D) 61 mph

Answer: C

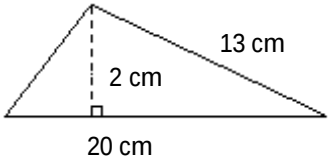
138) Chris rode his bike at an average speed of 13.2 miles per hour for 4 hours. How far did he bike?

A) 52.8 mi B) 66 mi C) 3.3 mph D) 13.2 mi

Answer: A

Determine the area or volume as indicated. Use 3.14 for π when necessary.

139)

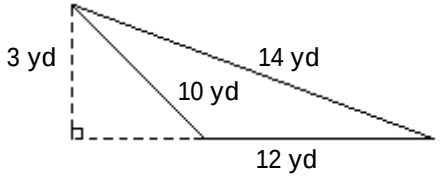


Find the area.

A) 20 cm^2 B) 130 cm^2 C) 40 cm^2 D) 13 cm^2

Answer: A

140)

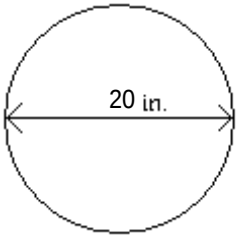


Find the area.

A) 18 yd^2 B) 21 yd^2 C) 15 yd^2 D) 36 yd^2

Answer: A

141)

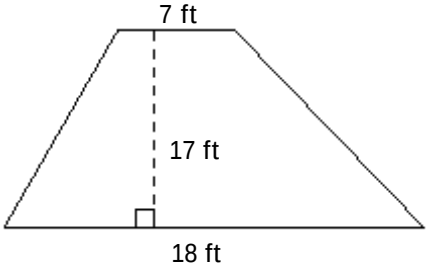


Find the area.

A) 62.80 $in.^2$ B) 125.60 $in.^2$ C) 314.00 $in.^2$ D) 1256.00 $in.^2$

Answer: C

142)

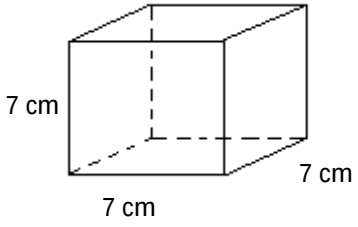


Find the area.

A) 425 ft^2 B) 119 ft^2 C) 306 ft^2 D) 212.5 ft^2

Answer: D

143)

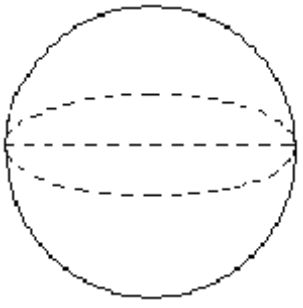


Find the volume.

A) 21 cm^3 B) 98 cm^3 C) 343 cm^3 D) 49 cm^3

Answer: C

144)



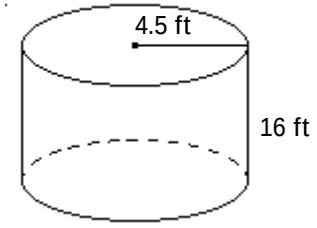
diameter = 6.8 m

Find the volume. Round to the nearest hundredth.

A) 24.20 m^3 B) 987.32 m^3 C) 164.55 m^3 D) 145.19 m^3

Answer: C

145)

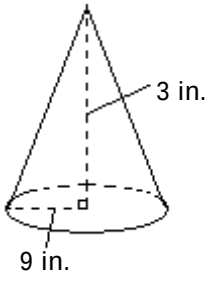


Find the volume.

A) 226.1 ft^3 B) 1017.4 ft^3 C) 4069.4 ft^3 D) 452.2 ft^3

Answer: B

146)



Find the volume. Round to the nearest whole unit.

A) 57 $in.^3$ B) 254 $in.^3$ C) 509 $in.^3$ D) 382 $in.^3$

Answer: B

Use geometry formulas to solve.

147) A circular fountain has a radius of 42 ft. Determine the circumference of the fountain.

A) 263.76 ft B) 65.94 ft C) 131.88 ft D) 5538.96 ft

Answer: A

148) Michael is shipping his mother's birthday gift to her in a rectangular box. If the gift's dimensions are 2 inches long by 5 inches wide by 9 inches high, find the volume of the smallest box that will hold the gift.

A) 180 $in.^3$ B) 16 $in.^3$ C) 90 $in.^3$ D) 14 $in.^3$

Answer: C

Use the formula to find the value of the variable indicated. Use a calculator to save time and where necessary, round your answer to the nearest hundredth.

149) $A = \frac{1}{2}bh$; find b when A = 16 and h = 6.

A) b = 0.19 B) b = 48 C) b = 1.33 D) b = 5.33

Answer: D

150) $V = \frac{1}{3}Bh$; find h when V = 48 and B = 12.

A) h = 12 B) h = 0.75 C) h = 0.08 D) h = 0.33

Answer: A

151) d = rt; find t when d = 560 and t = 8.

A) t = 552 B) t = 0.01 C) t = 70 D) t = 4480

Answer: C

152) P = 2l + 2w; find l when P = 24 and w = 4.

A) l = 16 B) l = 10 C) l = 8 D) l = 20

Answer: C

153) $P = \frac{A}{1 + rt}$; find r when P = 1650, A = 2145, and t = 4.

A) r = 6930 B) r = 0.08 C) r = 99 D) r = 0.19

Answer: B

Solve for the indicated variable.

154) $A = \frac{1}{2}bh$, for b

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

Answer: B

155) $S = 2\pi rh + 2\pi r^2$, for h

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

Answer: C

156) $V = \frac{1}{3}Bh$, for h

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

Answer: B

157) $F = \frac{9}{5}C + 32$, for C

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

Answer: D

158) $A = \frac{1}{2}h(a + b)$, for a

A) $a = \frac{A - hb}{2h}$ B) $a = \frac{2bA - h}{h}$ C) $a = \frac{hb - 2A}{h}$ D) $a = \frac{2A - hb}{h}$

Answer: D

159) d = rt, for r

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

Answer: A

160) $P = 2l + 2w$, for l

A) $l = \frac{P - w}{2}$ B) $l = P - 2w$ C) $l = \frac{P - 2w}{2}$ D) $l = P - w$

Answer: C

161) $A = P(1 + nr)$, for r

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

Answer: C

162) $I = Prt$, for r

A) $r = P - tI$ B) $r = \frac{P - 1}{It}$ C) $r = \frac{I}{Pt}$ D) $r = \frac{P - I}{1 + t}$

Answer: C

163) $\frac{1}{a} + \frac{1}{b} = \frac{1}{c}$, for c

A) $c = a + b$ B) $c = \frac{ab}{a + b}$ C) $c = \frac{a + b}{ab}$ D) $c = ab(a + b)$

Answer: B

164) $P = \frac{A}{1 + rt}$, for r

A) $r = P - tA$ B) $r = \frac{P - 1}{At}$ C) $r = \frac{P - A}{1 + t}$ D) $r = \frac{A - P}{Pt}$

Answer: D

165) $A = \frac{1}{2}h(B + b)$, for B

A) $B = \frac{2A - bh}{h}$ B) $B = \frac{2A + bh}{h}$ C) $B = 2A - bh$ D) $B = \frac{A - bh}{h}$

Answer: A

Solve the equation for y.

166) $3x + y = 6$

A) $y = 3x + 6$ B) $y = \frac{6 - x}{3}$ C) $y = 2 - x$ D) $y = 6 - 3x$

Answer: D

167) $15x + 7y = 12$

A) $y = \frac{15}{7}x - \frac{12}{7}$ B) $y = -\frac{15}{7}x + \frac{12}{7}$ C) $y = \frac{15}{7}x + \frac{12}{7}$ D) $y = 15x - 12$

Answer: B

168) $x = 5y + 4$

A) $y = 5x - 4$ B) $y = \frac{1}{5}x - \frac{4}{5}$ C) $y = x - \frac{4}{5}$ D) $y = \frac{1}{5}x - 4$

Answer: B

169) $-4x + 20y = 0$

A) $y = 5x + 4$ B) $y = 5x$ C) $y = -5x$ D) $y = \frac{x}{5}$

Answer: D

Solve the problem.

170) Use the formula $d = \frac{1}{2}n^2 - \frac{3}{2}n$ to find the number of diagonals in a figure with the given number of sides.

5 sides

A) 14 B) 5 C) 1 D) 20

Answer: B

171) Use the formula $C = \frac{5}{9}(F - 32)$ to find the Celsius temperature (C) equivalent to the given Fahrenheit temperatur

$F = 500°$

A) $C = 842.4°$ B) $C = 260°$ C) $C = 932°$ D) $C = 295.6°$

Answer: B

172) Use the formula $F = \frac{9}{5}C + 32$, to find the Fahrenheit temperature (F) equivalent to the given Celsius

temperature (C).

$C = 345°$

A) $F = 211°$ B) $F = 653°$ C) $F = 589°$ D) $F = 175.4°$

Answer: B

173) In chemistry, the ideal gas law is $P = \frac{KT}{V}$ where P is pressure, T is temperature, V is volume, and K is a constant.

the missing quantity.

$V = 5, P = 80, K = 4$

A) $T = 4$ B) $T = 64$ C) $T = 1600$ D) $T = 100$

Answer: D

Is the proportion set up correctly?

174) $\frac{oz}{hr} = \frac{oz}{hr}$

A) Yes B) No

Answer: A

175) $\frac{in}{sec} = \frac{in}{sec}$

A) Yes B) No

Answer: A

176) $\frac{in}{hr} = \frac{hr}{in}$

A) Yes B) No

Answer: B

The results of a mathematics examination are given. Write the ratio in lowest terms.

177) Results: 9 A's, 5 B's, 9 C's, 3 D's, 2 F's
A's to B's

A) 9 : 5 B) 4 : 1 C) 5 : 9 D) 9 : 4

Answer: A

178) Results: 6 A's, 6 B's, 17 C 's, 7 D's, 3 F's
A's to total grades

A) 13 : 3 B) 2 : 13 C) 2 : 39 D) 2 : 11

Answer: B

179) Results: 6 A's, 6 B's, 22 C 's,G 2 D's, 2 F's
Grades better than C to total grades

A) 13 : 1 B) 11 : 19 C) 6 : 19 D) 17 : 19

Answer: C

Determine the following ratio. Write the ratio as a fraction in lowest terms.

180) 4 inches to 5 inches

A) 4:5 B) - 4:5 C) 5:4 D) - 5:4

Answer: A

181) 6 inches to 9 feet

A) 1:18 B) 9:6 C) 18:1 D) 6:9

Answer: A

182) 159 minutes to 6 hours

A) 159:6 B) 120:53 C) 53:120 D) 6:159

Answer: C

183) 9 quarters to 16 dollars

A) 9:16 B) 64:9 C) 9:64 D) 16:9

Answer: C

184) 6 nickels to 7 dollars

A) 70:3 B) 7:6 C) 3:70 D) 6:7

Answer: C

185) 20 miles to 18 feet

A) 17,600:3 B) 3:17,600 C) 18:20 D) 20:18

Answer: A

Solve the proportion for the variable by cross-multiplying.

186) $\frac{x}{42} = \frac{3}{14}$

A) x = 9 B) x = 196 C) x = 12 D) x = 1

Answer: A

187) $\frac{6}{x} = \frac{0.4}{3.2}$

A) $x = \frac{32}{25}$ B) $x = \frac{12}{5}$ C) $x = \frac{96}{5}$ D) $x = 48$

Answer: D

188) $\frac{4.2}{n} = \frac{2.5}{5.6}$

A) $n = 9.4$ B) $n = 0.1$ C) $n = 94.1$ D) $n = 1.1$

Answer: A

189) $\frac{x}{9.1} = \frac{0.03}{4}$

A) $x = 1213.33$ B) $x = 1.09$ C) $x = 14.65$ D) $x = 0.07$

Answer: D

Write a proportion that can be used to solve the problem. Then solve the equation to obtain the answer.

190) The ratio of a quarterback's completed passes to attempted passes is 5 : 7. If he attempted 21 passes, find how many passes he completed. Round to the nearest whole number.

A) 7 passes B) 3 passes C) 29 passes D) 15 passes

Answer: D

191) The ratio of a basketball player's completed free throws to attempted free throws is 4 : 5. If she completed 12 free throws, find how many free throws she attempted. Round to the nearest whole number.

A) 10 free throws B) 15 free throws C) 3 free throws D) 4 free throws

Answer: B

192) It takes Winnie 22 minutes to type and spell check 6 pages of a manuscript. Find how long it takes her to type and spell check 33 pages. Round to the nearest whole number.

A) 121 minutes B) 726 minutes C) 9 minutes D) 22 minutes

Answer: A

193) It takes Bill 30 minutes to type and spell check 16 pages. Find how many pages he can type and spell check in 3.5 hours. Round to the nearest tenth.

A) 393.8 pages B) 56 pages C) 112 pages D) 186.7 pages

Answer: C

194) On an architect's blueprint, 1 inch corresponds to 4 feet. Find the length of a wall represented by a line $2\frac{1}{4}$ inches long on the blueprint. Round to the nearest tenth.

A) 7.5 feet B) 9 feet C) 56.3 feet D) 17.8 feet

Answer: B

195) It is recommended that there be at least 9.3 square feet of floor space in a classroom for every student in the class. Find the minimum floor space that 36 students require. Round to the nearest tenth.

A) 25.8 square feet B) 334.8 square feet C) 387.1 square feet D) 9.3 square feet

Answer: B

196) It is recommended that there be at least 14.1 square feet of ground space in a garden for every newly planted shrub. A garden is 28.2 feet by 18 feet. Find the maximum number of shrubs the garden can accommodate.

A) 36 shrubs B) 2 shrubs C) 12 shrubs D) 169 shrubs

Answer: A

197) It is recommended that there be at least 17 square feet of work space for every person in a conference room. A certain conference room is 12 feet by 18 feet. Find the maximum number of people the room can accommodate.

A) 13 people B) 23 people C) 12 people D) 33 people

Answer: C

198) A bag of fertilizer covers 2000 square feet of lawn. Find how many bags of fertilizer should be purchased to cover a rectangular lawn 380 feet by 240 feet.

A) 45 bags B) 4560 bags C) 456 bags D) 46 bags

Answer: D

Determine the ratio and write the ratio as some quantity to 1.

199) According to a study, each week the average elementary child spends 19 hours watching television, 7 hours reading books, and 6 hours playing outside. What is the ratio of number of hours of television watched to the number of hours reading?

A) 19:7; 2.71:1 B) 19:12; 1.58:1 C) 19:6; 3.17:1 D) 7:19; 0.37:1

Answer: A

200) After a recent poll of registered voters in Grant County it is determined that 45% plan on voting for the the Republican candidate for governor, 30% plan on voting for the Democrat candidate, and 25% were undecided. What is the ratio of Republican voters to Democrat voters?

A) 45:25; 1.8:1 B) 3:2; 1.5:1 C) 15:1 D) 2:3; 0.67:1

Answer: B

Use a proportion to make the conversion. Round answers to two decimal places.

201) Convert 37,064 feet to miles.

A) 14.25 mi B) 7.02 mi C) 0.14 mi D) 195,697,920 mi

Answer: B

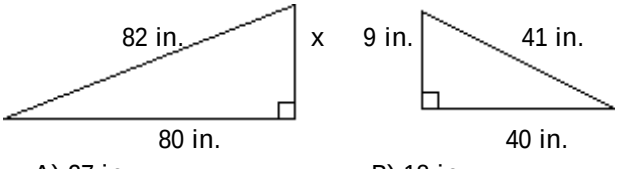
202) In a finite mathematics class, for a particular test, we find that 1 standard deviation equals 8 points. How many points equal 5.25 standard deviations?

A) 42 points B) 0.66 points C) 6.56 points D) 1.52 points

Answer: A

The following figures are similar. For the pair, find the length of the side indicated by x.

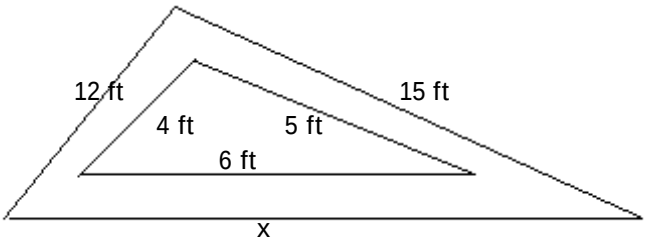
203)



A) 27 in. B) 18 in. C) 13 in. D) 9 in.

Answer: B

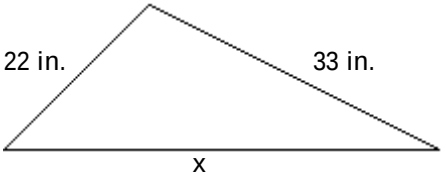
204)



A) 24 ft B) 18 ft C) 20 ft D) 6 ft

Answer: B

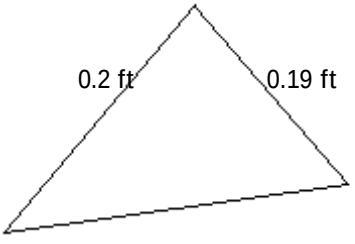
205)

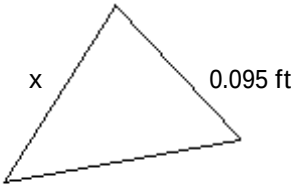


A) 55 in. B) 41 in. C) 44 in. D) 36 in.

Answer: C

206)

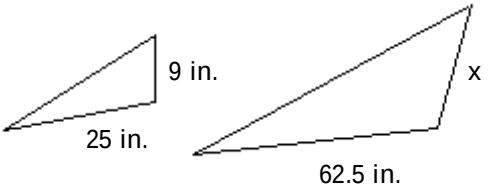




A) 0.09025 ft B) 0.4 ft C) 0.1 ft D) 10 ft

Answer: C

207)



A) 225 in. B) 3.6 in. C) 0.36 in. D) 22.5 in.

Answer: D