

1. What is the solution to the equation below?

$$10x - 24 - 3x = \frac{1}{2}(14x - 24)$$

- A. -3
- B. 0
- C. no solution
- D. infinite solutions

2. What is the value of m in the equation shown below?

$$\frac{1}{4}(m - 12) = -\frac{3}{4}m + 3$$

- A. 15
- B. 6
- C. 0
- D. -9

3. What is the solution to the equation shown below?

$$4(2x - 3) = 5x - 42 - 2x$$

A. -9

B. -6

C. 6

D. 9

4. What is the value of x in the equation $-4.2x - 8.3 = -3.7(x + 3)$?

A. 5.6

B. 2.5

C. -2.8

D. -38.8

5. What is the solution to the equation $-3(x - 1) + 3 = 9 - 2(x + 1)$?

A. 8

B. 1

C. -1

D. -8

6. A cell phone company charges \$120 for the phone, and then \$35 a month for phone service. Another cell phone company charges \$55 a month for phone service with a free phone. After how many months will the phone services cost the same?

A. 4

B. 5

C. 6

D. 7

7. What is the solution to the equation $10x - 10 = 4(x + 1) + 6x - 14$?

A. -20

B. 0

C. no solution

D. infinite solutions

8. Three is added to the quotient of a number and 4, and the result is 8 less than 3 times the same number. What is the value of this number?

A. -11

B. $-\frac{4}{7}$

C. $\frac{20}{13}$

D. 4

9. What is the solution to the equation below?

$$2(4w + 4) = 2(1 + 2w) + 2w$$

A. -3

B. 5

C. no solution

D. infinitely many solutions

10. Rental Company X charges a flat fee of \$50 plus \$30 per day to rent a car. Rental Company Y charges a flat rate of \$60 plus \$40 per day to rent a car. Rental Company Y also discounts the daily cost by \$12 for its Loyalty Club members. If Emily is a member of the Loyalty Club, how many days can she rent a car at Rental Company X at the same cost as renting a car at Rental Company Y?

A. 1 day

B. 5 days

C. 12 days

D. 20 days

11. What is the value of x in the equation $6x - 4 + 2x = 4(5 + 2x)$?

A. 4

B. 0

C. no solution

D. infinitely many solutions

12. What is the solution to the equation below?

$$4(x - 3) + 5 = 2(2x - 1) + 7$$

A.

$$\frac{3}{2}$$

B.

$$-\frac{1}{4}$$

C. infinitely many solutions

D. no solution

13. What is the solution to the equation $4 + \frac{1}{2}(6x - 8) = \frac{2}{3}(9x + 6) - 8$?

A.

$$-\frac{4}{3}$$

B. $-\frac{2}{3}$

C. $\frac{2}{3}$

D. $\frac{4}{3}$

14. What is the value of x in the equation below?

$$\frac{2}{3}\left(\frac{1}{2}x - \frac{1}{4}\right) = \frac{3}{4}\left(\frac{4}{9}x + \frac{2}{9}\right)$$

A.

$$\frac{1}{3}$$

B. $\frac{1}{6}$

C. no solution

D. infinite solutions

15. What is the solution to the equation below?

$$3\left(\frac{2}{3}x + 9\right) = -2\left(5x + \frac{9}{2}\right)$$

A.

$$-3$$

B.

$$-\frac{3}{2}$$

C.

$$\frac{9}{4}$$

D.

3

16. What is the solution to the equation $7x - 3(x - 8) = \frac{1}{2}(8x + 6)$?

A. 2

B. 0

C. no solution

D. infinite solutions

17. What is the solution to the equation below?

$$-3(6 - 2x) + 23 = 4 - \frac{1}{3}(-18x - 3)$$

A. infinite number of solutions

B. no solution

C. $\frac{1}{2}$

D. 0

18. What is the solution to the equation below?

$$2x - \frac{2}{3}(12 - 9x) = \frac{3}{4}(12x - 8) - x$$

A. $-\frac{7}{8}$

B. $\frac{1}{8}$

C. no solution

D. infinite solutions

19. What is the solution to the equation $3 - 2(x + 1) = 2(1 - x)$?

A. $x = -2$

B. $x = 2$

C. no solution

D. infinitely many solutions

20. What is the solution to the equation below?

$$5(2n - 8) + 4n = -20 + 2(-10 - 3n)$$

- A.** -4
- B.** 0
- C.** no solution
- D.** infinite solutions

21. A taxi company charges a flat fee of \$6.00, plus \$1.10 per mile after the first 3 miles. Sarah's taxi cab ride cost \$22.50. How many total miles did Sarah travel?

- A.** 15 miles
- B.** 18 miles
- C.** 20 miles
- D.** 22 miles

22. The measure of a leg of an isosceles triangle is twice the measure of its base. If the perimeter of the triangle is 64 units, what is the measure of the base of the triangle?

- A. 5.7 units
- B. 12.8 units
- C. 16.0 units
- D. 21.3 units

23. Robert bought new carpet for his living room. The store charged a flat rate of \$300.00 to remove the old carpet and install the new carpet. Robert paid \$2.79 per square foot for carpet. Before taxes, Robert paid a total of \$1,262.55 for carpet. How many square feet of carpet did Robert purchase?

- A. 153 square feet
- B. 345 square feet
- C. 452 square feet
- D. 560 square feet

24. Trusted Car Rental Company charges a fee of \$20 per day, plus \$0.20 per mile. Zippy Car Rental Company charges \$30 per day, plus \$0.15 per mile. If John needs a car for 2 days, how many miles would he have to drive for the cost of the cars to be the same price?

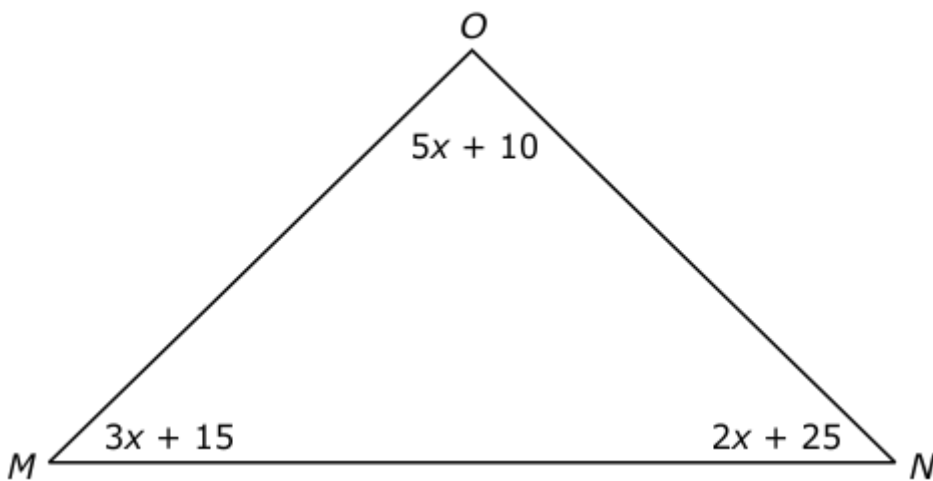
- A. 100 miles
- B. 200 miles
- C. 300 miles
- D. 400 miles

25. What is the solution to the equation below?

$$3(x - 2) - x = 7 + 5x - 9 - 3x$$

- A. 1
- B. 0
- C. no solution
- D. infinite solutions

26. Triangle MNO is shown below.



What is the measure of $\angle MNO$?

- A. 13°
- B. 23°

C. 51°

D. 71°

27. What is the solution to the equation below?

$$3(8x + 2) + 2 = 8(-3x - 2) + 8$$

A. no solution

B.

$$-\frac{1}{3}$$

C. 3

D. infinitely many solutions

28. What is the value of x in the equation below?

$$-\frac{2}{3}\left(\frac{3}{8}x + 9\right) = \frac{3}{5}\left(\frac{5}{12}x - 10\right)$$

- A. -24
- B. 0
- C. no solution
- D. infinite solutions

29. What is the solution to the equation $6x + 15 + 2x + 1 = 16$?

- A. 4
- B. 0
- C. no solution
- D. infinitely many solutions

30. The length of a rectangle is four times the width. If the perimeter of the rectangle is 50 inches, what is the area of this rectangle?

- A. 40 in.^2
- B. 100 in.^2
- C. 280 in.^2
- D. 400 in.^2

31. What is the value of x in the equation $2(x + 1) + 3 = 6$?

A. -0.5

B. 0.5

C. 1

D. 2

32. Two times a number plus thirty-seven is equal to five less than five times the same number. What is the number?

A. 5

B. 6

C. 11

D. 14

33. What is the solution to the equation below?

$$4(3x + 5) = 5(x + 4) + 7x$$

A. infinite solutions

B. no solution

C. 0

D. $\frac{3}{8}$

34. What is the value of x in the equation below?

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

A. $-\frac{8}{3}$

B. $-\frac{14}{9}$

C. $-\frac{20}{9}$

D. $-\frac{22}{15}$

35. What is the value of x in the equation $5(2x - 6) = 6 - 6(3x - 1)$?

A. 0.4

B. 0.6

C. 1.1

D. 1.5

36. What is the solution to the equation $3x + 5(x - 9) = 10x + 45 - 2x$?

A. infinite solutions

B. no solution

C. $x = 5$

D. $x = 0$

37. What is the value of x in the equation shown below?

$$3x - 2(3x + 4) = 4(x + 5) + 7$$

A. -35

B. -5

C. 5

D. 35

38. What is the value of x in the equation $\frac{1}{9}x - 8 = -\frac{4}{9}x + 12$?

- A. 7
- B. 12
- C. 36
- D. 60

39. What is the solution to the equation $3y + 7(5y - 4) + 10 = 6(y - 3) + 32y$?

- A. infinite solutions
- B. no solution
- C. $y = \frac{9}{19}$
- D. $y = 0$

40. What is the solution to the equation below?

$$3x + 2(x - 5) + 10 = \frac{2}{3}(9x - 15) + 4x$$

- A. 4
- B. 2
- C. -2

D. -4

41. What is the value of x in the equation below?

$$\frac{4}{9}(18x - 3) + x = \frac{1}{3}(27x - 4)$$

A. infinite solutions

B. no solution

C. 0

D. $-\frac{8}{3}$

42. Three times Zoey's age plus Ayden's age is equal to 10. Ayden is twice Zoey's age. What is Ayden's age?

A. 2

B. 4

C. 8

D. 12

43. Which statement is true about the equation $2(4x + 10) = 8x + 12$?

A. The equation has only one solution, $x = 8$.

B. The equation has only one solution, $x = -8$.

C. The equation has no solution.

D. The equation has infinite solutions.

44. What is the solution to the equation below?

$$2.5(9.3 - 3.72x) = -2.5(-3.72x + 9.3)$$

A. -1

B. 2.5

C. no solution

D. infinite solutions

45. Wanda is 10 years older than Michael. Linda is 5 years older than Wanda. The sum of all their ages is 31 years. Which equation represents the sum of their ages in terms of Wanda's age (w)?

A. $2w + 15 = 31$

B. $3w + 15 = 31$

C. $2w - 5 = 31$

D. $3w - 5 = 31$

46. Company X uses the equation $c = 10t + 40$ to determine the cost (c) of a project given the time (t) it takes to complete the project. Company Y uses the equation $c = 20t$ to determine the cost of a project given the amount of time it takes to complete the project. How many hours would a project take that costs the same for both companies?

A. 1.75 hours

B. 4 hours

C. 5 hours

D. 30 hours

47. Which is a solution to $2(x + 4) + 2 = 7$?

A. -1.5

B. -0.5

C. 1

D. 1.5

48. At a pizza restaurant, a large cheese pizza costs \$8.99, plus \$1.25 per topping. If Laura paid \$13.99 for a large pizza before taxes, how many toppings did Laura put on her pizza?

A. 3

B. 4

C. 5

D. 6

49. A rectangular driveway is twice as long as it is wide. If the perimeter is 100 ft, what is the **approximate** width of the driveway?

A. 13 ft

B. 17 ft

C. 33 ft

D. 50 ft

50. What is the solution to the equation $-4y - 15 = -3(y + 6) - (y + 3)$?

A. 0

B. 3

C. no solution

D. infinite solutions

51. What is the value of x in the equation shown below?

$$3(x - 4) + 5 = 20$$

A. 1

B. 5

C. 9

D. 19

52. Ted has two boards. The length of the second board is five inches more than two times the length of the first board. The total length of the two boards is 65 inches. How many inches long is the first board?

A. 20 inches

B. 25 inches

C. 45 inches

D. 60 inches

53. What is the value of x in $5(x + 1) + 5 = 5$?

A. $\frac{1}{5}$

B. 1

C. $-\frac{1}{5}$

D. -1

54. What is the value of x in the equation shown below?

$$\frac{4x-9}{2} + \frac{5-6x}{3} = \frac{4(2x-11)}{5}$$

A. $\frac{10}{3}$

B. $\frac{57}{16}$

C. $\frac{179}{48}$

D. $\frac{95}{24}$

55.

What is the solution to the equation below?

$$\frac{1}{2}(6x + 10) + x = 9x + 5(1 - x)$$

A. infinitely many solutions

B. no solution

C. 0

D. $\frac{5}{4}$

56. What is the value of x in the equation $2(x + 4) + 3 = 8$?

A. -1.5

B. -0.5

C. 0.5

D. 1.5

57. What is the value of n in the equation below?

$$8n + 3 \left(7 - \frac{5}{3}n \right) = 15 - 4 \left(\frac{3}{4}n - 2 \right)$$

A. $-2\frac{1}{3}$

B. $\frac{1}{3}$

C. no solution

D. infinite solutions

58. A piece of wood that measures 175 in. long was cut into three pieces. The second piece of wood is 3 in. more than 3 times the length of the first piece of wood. The third piece of wood is 8 in. less than 4 times the length of the first piece of wood. What is the length of the longest piece of wood?

A. 70 in.

B. 77 in.

C. 82 in.

D. 85 in.

59. What is the solution to the equation $8 - 7(4x - 2) = -28x + 6$?

A. 6

B. 12

C. no solution

D. all real numbers

60. The sum of three consecutive odd numbers is 39. What is the largest of the three numbers?

A. 13

B. 15

C. 17

D. 19

61. A gym membership charges an initial fee of \$100 plus a \$25 fee every month. Another gym only charges \$45 every month. After how many months will the total cost for both gyms be the same?

A. 2

B. 3

C. 4

D. 5

62. A telephone company charges a monthly fee of \$24 for 100 minutes of long distance service. The customer must then pay 7 cents per additional minute over 100. Todd's phone bill for October was \$26.38, not including taxes. How many total minutes of long distance did Todd use in October?

A. 34

B. 66

C. 134

D. 377

63. What is the value of n in the equation $\frac{60+n}{3} = \frac{84+n}{15}$?

A. 96

B. 64

C. -36

D. -54

64. What is the value of y in the equation $4(5y - 9) - 24y + 70 = 4(1 - 21y)$?

A. $-\frac{3}{8}$

B. $-\frac{5}{8}$

C. $-2\frac{2}{3}$

D. $-3\frac{1}{3}$

65. Which equation has infinitely many solutions?

A. $-5 + 6.2x = 6.2x - 6$

B. $3x + 10.5 = 10.5 - 3x$

C. $-2.5x - 8 = 8 - 2.5x$

D. $-4x - 12 = -12 - 4x$

66. What is the value of x in the equation $5(3x - 4) = 2x + 7 + 4x$?

A. 1

B. 3

C. 6

D. 13

67. Four times a number plus fifteen is equal to two times that same number plus forty-five. What is the number?

A. 5

B. 10

C. 15

D. 30

68. What is the value of x in the equation $7 - \frac{3}{4}x = \frac{1}{2}x - 3$?

A.

40

B.

$\frac{25}{2}$

C.

8

D.

$\frac{16}{5}$

69. What is the value of x in the equation $\frac{2x-6}{5} = \frac{2x+4}{3}$?

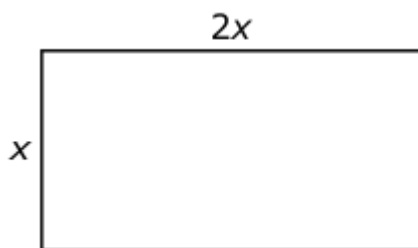
A. $-\frac{5}{8}$

B. $-\frac{1}{8}$

C. $\frac{1}{8}$

D. $\frac{5}{8}$

70. The rectangle below has a perimeter of 120 inches.



What is the measure of the width,

x

, of the rectangle?

A. 60 inches

B. 40 inches

C. 20 inches

D. 10 inches

71. What is the value of x in the equation $\frac{2x - 12}{-3} = 7$?

A. -1

B. $-4\frac{1}{2}$

C. -11

D. $-16\frac{1}{2}$

72. What is the value of x in the equation $-2(4x - 2) + 5 = -1$?

A. $\frac{5}{4}$

B. 1

C. $\frac{1}{2}$

D. $\frac{1}{4}$

- 73.** A 1.4-meter piece of wood is cut into two pieces. The larger piece is 0.2 meters longer than twice the length of the shorter piece. How long is the larger piece of wood?
- A.** 0.4 m
 - B.** 0.6 m
 - C.** 1.0 m
 - D.** 1.2 m
- 74.** A group of students hiked 38 km over three days. The first day, the students hiked 1 km less than 3 times as far as they hiked the second day. The third day, they hiked 2 km less than the first day. How far did the students hike the first day?
- A.** 6 km
 - B.** 10 km
 - C.** 17 km
 - D.** 18 km
- 75.** Three times the difference of a number x and seven is twenty-three minus the sum of three times a number x and two. What is the value of x ?
- A.** 5
 - B.** 7
 - C.** no solution

D. infinitely many solutions

76. What is the value of x in the equation $6(x + 5) = 3(x - 14)$?

A. -1

B. -4

C. -6

D. -24

77. What value of x satisfies the equation $3(x + 7) = -18$?

A. -1

B. -4

C. -8

D. -13

78. What is the solution to the equation shown below?

$$3(x + 7) + 4 = 40$$

- A. 5
- B. 10
- C. 15
- D. 20

79. What is the value of x in the equation $7x + 12 = x + 24$?

- A. 0
- B. 2
- C. 6
- D. 36

80. What is the value of t in the equation $3(t - 4) = 2t + 1$?

- A. -3
- B. -2
- C. 5
- D. 13

81. Twice a number m is 32 less than 6 times m . What is the value of m ?

A. -8

B. -4

C. 4

D. 8

82. Which equation below has infinitely many solutions?

A.

$$\frac{1}{3}(6r + 12) = 2r + 12$$

B.

$$\frac{1}{4}(8r + 12) = 3 + 2r$$

C.

$$\frac{1}{2}(16 + 12r) = 12r + 8$$

D.

$$\frac{1}{5}(10r + 20) = 2r + 10$$

83. A 16-foot piece of wood was cut into two pieces. The longer piece of wood is 3 feet less than twice the shorter piece. What is the length of the longer piece of wood?

A. $6\frac{1}{3}$ feet

B. $6\frac{1}{2}$ feet

C. $9\frac{1}{2}$ feet

D. $9\frac{2}{3}$ feet

84. Jan is 5 years older than Tom. In 3 years, Tom will be $\frac{3}{4}$ as old as Jan. What is Tom's age now?

A. 10 years old

B. 12 years old

C. 17 years old

D. 25 years old

85. José's age is 2 more than 3 times Maria's age. The sum of their ages is 38. How old is Maria?

- A. 9
- B. 10
- C. 13
- D. 14

86. What is the solution to the equation $-2(6x + 8) + 7x = 3x - 2(12 + 4x)$?

- A. infinitely many solutions
- B. no solution
- C. $x = 2$
- D. $x = 3$

87. What is the value of x in the equation $3(x + 4) + 3 = 9$?

- A. -2
- B. -1
- C. 5
- D. 8

88. What is the solution to the equation $2(3x + 1) + 2x = 8x + 1$?

A. 1

B. 2

C. no solution

D. all real numbers

89. Ricky is building a rectangular fence. Two sides of the fence have lengths of 28 feet each. Ricky only has 100 feet of fencing. What is the greatest length of each of the remaining two sides?

A. 22 feet

B. 44 feet

C. 56 feet

D. 72 feet

90. What is the value of p in the equation $2(p - 5) = 2(10 + 2p)$?

A. 15

B. 5

C. -5

D. -15

91. The lengths of the sides of a triangle are $2x + 5$, $x - 3$, and $3x + 1$. The perimeter of the triangle is 39 in. What are the lengths of the sides?

- A.** 11 in., 3 in., and 7 in.
- B.** 15 in., 2 in., and 16 in.
- C.** 17 in., 3 in., and 19 in.
- D.** 19 in., 4 in., and 22 in.

92. Bob works as a plumber. He charges \$45.00 for the first hour and \$33.75 for each additional hour. Bob was paid \$247.50 for his last job. How many hours did Bob work on his last job?

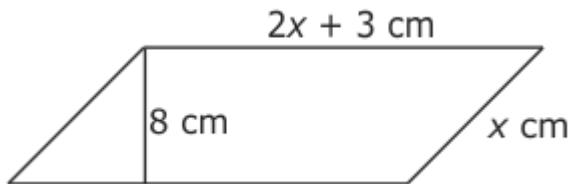
- A.** 3
- B.** 4
- C.** 6
- D.** 7

93. What is the value of x in the equation $13x - 2(6x - 4) = 72$?

- A.** 64
- B.** 68
- C.** 76

D. 80

94. The area of the parallelogram below is 184 units^2 .



What is the perimeter of the parallelogram?

A. 23 cm

B. 33 cm

C. 41 cm

D. 66 cm

95. A hexagon has two sides that are equal. The two equal sides are 2 inches longer than each of the four other sides. The perimeter of the hexagon is 22 inches. What is the measure of one of the shorter sides?

A. 2 inches

B. 3 inches

C. 4 inches

D. 5 inches

96. What is the value of x in the equation $\frac{3}{5}x - 2 = \frac{1}{3} + \frac{1}{4}x$?

A. $2\frac{1}{4}$

B. $3\frac{1}{3}$

C. $4\frac{3}{4}$

D. $6\frac{2}{3}$

97. What is the value of x in the equation $\frac{x-4}{6} = \frac{3}{7}$?

A.

$1\frac{3}{7}$

B.

$3\frac{1}{7}$

C.

$$4\frac{1}{14}$$

D.

$$6\frac{4}{7}$$

98. What is the value of x in the equation $2(4 + 3x) + 6 = 32$?

A. 3

B. 6

C. 7

D. 8

99. What is the value of x in the equation $3x - 1 = 2(x - 3)$?

A. -7

B. -5

C. -3

D. -2

100. What is the solution to the equation $-4x + 3 = \frac{1}{2}(-8x + 8)$?

A. $x = 3$

B. $x = 4$

C. no solution

D. infinite solutions

101. What is the value of y in the equation $\frac{2}{3}(60y - 18) = \frac{1}{2}(8 - 16y)$?

A. -4

B. $-\frac{1}{4}$

C. $\frac{1}{3}$

D. 3

102. The sum of three consecutive integers is 87. What is largest value of the three integers?

A. 28

B. 29

C. 30

D. 31

103. The cost of production for boxes of markers is \$500.00 to set up equipment plus \$0.35 per box for materials. A box of markers sells for \$2.85. How many boxes of markers must be sold for the company's income to equal the cost of production?

A. 150

B. 175

C. 200

D. 250

104. Phone Company 1 charges a flat rate of \$25.00 a month for local calling, and \$0.05 per minute for each long distance call. Phone Company 2 charges a flat rate of \$20.00 a month for local calling, and \$0.10 per minute for long distance calling. After how many minutes of long distance calling do the phone companies charge an equal amount?

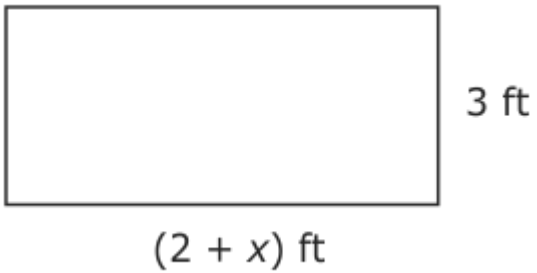
A. 50 minutes

B. 100 minutes

C. 200 minutes

D. 300 minutes

105. The perimeter of the rectangle below is 28 ft.



What is the value of x ?

- A. 7
- B. 9
- C. 18
- D. 20

106. Jill is an electrician. Her charges per hour are listed in the table below.

Hours	Charge per hour
-------	-----------------

First hour	\$65
Second hour	\$55
Each additional hour or part thereof	\$45

Jill earned \$322.50 for electrical work. How many hours did Jill work?

- A. 4.5
- B. 5
- C. 6.5
- D. 7

107. Three consecutive odd integers have a sum of 111. What is the smallest of the three integers?

- A. 33
- B. 35
- C. 37
- D. 39

108. Which statement is true about the equation shown below?

$$3x - 2(6x - 1) = 10 - 4x + 8 - 5x$$

- A.** The equation has no solution.
- B.** The only solution to the equation is $x = 0$.
- C.** The only solution to the equation is $x = -2$.
- D.** The equation has infinite solutions.

109. What is the value of x in the equation below?

$$2x + 0.5(6x - 4) = 3.5x + 0.25(2x - 16)$$

- A.** 12
- B.** 2
- C.** -2
- D.** -12

110. What is the solution to the equation $8(x - 1) + 3x = 7 + 11x$?

- A. infinitely many solutions
- B. no solution
- C. 0
- D. 15

111. Which choice **best** represents the solution(s) to the equation below?

$$7(x - 4) = 2(x - 14) + 5x$$

- A. -10
- B. 0
- C. no solution
- D. infinitely many solutions

112. What is the value of x in the equation $8x + 12 = 4x - 8$?

- A. -5

B. $-\frac{5}{3}$

C. -1

D. $-\frac{1}{3}$

113. If $6x + 5 = \frac{2x - 3}{-2}$, what is the value of x ?

A. 1

B. $\frac{2}{7}$

C. $-\frac{1}{5}$

D. $-\frac{1}{2}$

114. Which statement is true about the equation shown below?

$$\frac{2}{3}(9x + 18) - 2x = \frac{1}{4}(16x + 48)$$

A. The equation has infinite solutions.

B. The equation has no solutions.

C. The only solution to the equation is $x = 0$.

D. The only solution to the equation is $x = 12$.

115. Three times a number plus two is equal to two times that same number plus 23. Find that number.

A. 65

B. 42

C. 21

D. 17

116. Which statement is true about the equation shown below?

$$6x + 4 - 2x = 4(x + 4)$$

A. The only solution to the equation is $x = -5$.

B. The only solution to the equation is $x = 0$.

C. The equation has no solution.

D. The equation has infinite solutions.

117. What is the solution to the equation below?

$$\frac{1}{3}(9x - 12) + 2(5x - 1) = \frac{1}{4}(8x + 12) - 3(2x + 3)$$

- A.** 0
- B.** 1
- C.** no solution
- D.** infinite solutions

118. What is the value of x in the equation shown below?

$$\frac{1}{3}(9x - 6) = 22 - 5x$$

- A.** 3
- B.** 6
- C.** 10
- D.** 12

119. What is the solution to the inequality $x + 4 + 2x \leq 20 + 5x - 32$?

A. $x \geq -8$

B. $x \leq -8$

C. $x \geq 8$

D. $x \leq 8$

120. The sum of triple a number, n , and 8 is equal to 10 less than the number, n . What is the value of n ?

A. -17

B. -9

C. -6

D. $4\frac{1}{2}$

121. What is the solution to the equation below?

$$7x - \frac{1}{2}(10x + 6) = 8x - 3 - 6x$$

A. $\frac{3}{2}$

B. $-\frac{9}{4}$

C. no solution

D. infinitely many solutions

122. What is the solution to the equation $\frac{1}{2}(x - 12) + 4 = \frac{1}{3}(6x - 15)$?

A. -2

B. $-\frac{9}{2}$

C. $\frac{9}{2}$

D. 2

123. What is the solution to the equation shown below?

$$5(3x + 6) - (7x + 10) = -2x + 10$$

A. -3

B. -1

C. 1

D. 3

124. What is the value of x in the equation $\frac{1}{2}(3x - 6) = 5(x + 1.5)$?

A. $x = -9\frac{1}{3}$

B. $x = -5$

C. $x = -3$

D. $x = -\frac{9}{7}$

125. What is the value of x in the equation shown below?

$$5x + 7(2 + x) = 6 - 3(2 - x)$$

A. $-\frac{14}{9}$

B. $-\frac{14}{15}$

C. $\frac{15}{14}$

D. $\frac{14}{13}$

126. Which equation has infinitely many solutions?

A. $2(3y - 5) = 10y - 4$

B. $3(4y - 5) = 12y - 15$

C. $4(5y + 2) = 20y - 6$

D. $6(2y + 3) = 17y - 7$

127. What is the value of x in the equation below?

$$2.8x - 4 = 0.5(1.4x + 2) + 1.3$$

A. -3

B. 3

C. no solution

D. infinite solutions

128. What is the solution to the equation below?

$$6x + \frac{1}{2}(12x - 8) = 3x - 31$$

A. -1.8

B. -2.3

C. -2.6

D. -3.0

129. Which set of equations represents the solution to $2x - 6 = 14$?

A. $2x - 6 = 14$

$$2x = 8$$

$$x = 4$$

B. $2x - 6 = 14$

$$2x = 20$$

$$x = 10$$

C. $2x - 6 = 14$

$$2x = 8$$

$$x = 16$$

D. $2x - 6 = 14$

$$2x = 20$$

$$x = 40$$

130. Solve. $-5x - 3 + 4x + 1 = -4$

A. $x = 6$

B. $x = 2$

C. $x = -6$

D. $x = -2$

131.

What is the solution to the equation $\frac{1}{2}(x+5) = 10$?

A. $x = 0$

B. $x = 10$

C. $x = 15$

D. $x = 25$

132. Which equation represents the solution to

$$\frac{1}{3}(2x+6) - 4 = 6 - \frac{4}{3}x + 8 \quad ?$$

A. $x = 8$

B. $x = 6$

C. $x = 2$

D. $x = 0$

133. A student solved an equation for the unknown value of n as $0 = 0$. Which set represents all of the possible values of n ?

- A.** only zero can be the solution
- B.** only positive numbers can be the solution
- C.** only negative numbers can be the solution
- D.** any number can be the solution

134. How many solutions does the equation $4r + 8 = 8 + 4r$ have?

- A.** no solutions
- B.** one unique solution
- C.** two unique solutions
- D.** infinitely many solutions

135. Which equation has no solution?

- A.** $4x - 9 = -9$
- B.** $3x + 2 = 17$

C. $2x + 4 = 2x + 6$

D. $x + 3x = 8x - 4x$

136. Solve the equation $\frac{1}{4}(12x - 8) = 7$ for x .

A. $x = \frac{5}{3}$

B. $x = 3$

C. $x = \frac{13}{3}$

D. $x = 5$

137. Solve the equation $2(3x - 4) = 8x - 4 - 2x$.

A. no solution

B. infinitely many solutions

C. $x = -1$

D. $x = 4$

138. Solve the equation below for y .

$$3(y + 3) = 14$$

A. 11

B. 5

C. $\frac{11}{3}$

D. $\frac{5}{3}$

139. Which statement correctly describes the solution(s) of the equation below?

$$-2 + x - 3 = 2x + 5 - x$$

A. The equation has one solution, which is -5 .

B. The equation has one solution, which is 5 .

C. The equation has infinitely many solutions.

D. The equation has no solution.

140. What is the solution to the equation shown below?

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

A. $-\frac{1}{3}$

B. -1

C. -2

D. $-\frac{7}{3}$

141. What is the solution of the equation $3(x+2) = x+11$?

A. 1.25

B. 2.50

C. 4.25

D. 8.50

142. Which value of x satisfies the equation $6x - 5 + 2x = 11$?

A. -2

B. $-\frac{3}{4}$

C. $\frac{3}{4}$

D. 2

143. How many solutions does the equation $3x - 2x + 4 = 2 + x + 2$ have?

A. no solution

B. one solution

C. two solutions

D. infinitely many solutions

144. What is the solution to the equation $5.2(2a - 1) = 7a + 14.6$, rounded to the nearest tenth?

A. 4.6

B. 5.8

C. 10.2

D. 16.4

145. How many solutions does the equation $2(x + 4) = 2x + 8$ have?

A. no solutions

B. one solution

C. two solutions

D. infinite solutions

146. How many solutions does the equation $5(x - 2) = 8 + 5x$ have?

- A. no solution
- B. one solution
- C. two solutions
- D. infinitely many solutions

147. Which equation has no solution?

- A. $-5 + 8x - 9 = 3(x + 3)$
- B. $-2(6 - 3x) = -12 + 6x$
- C. $6 - 2(3 - 2x) = -4(3 - x)$
- D. $-(4x + 9) = 2x - 3(2x + 3)$

148. What is the value of x in the equation $0.25(3x - 4) - 0.5x = 2.75$?

- A. 27
- B. 15

C. 7

D. 3

149. Solve for x .

$$\frac{1}{2}x - 2 = 2(-x + 1)$$

A. $-\frac{8}{3}$

B. $\frac{8}{5}$

C. $\frac{6}{5}$

D. 2

150. Which equation has infinitely many solutions?

A. $8x = 8(x - 1) + 1$

B. $2x - 5 = 2(x - 5)$

C. $22 - 6x = 2(3x - 11)$

D. $3(5x - 4) - 8x = 7x - 12$

151. Which of these equations does NOT have any solutions?

A. $10 - 3x - 1 = 7 + 3x + 2$

B. $12 - 7x - 10 = x - 8x + 2$

C. $13 - 4x + 2 = 3x - 7x + 2$

D. $15 - 2x - 2 = 10x + 3x + 2$

152. Which equation has an infinite number of solutions?

A. $7(1 - 4x) + 3x = 7$

B. $5(2 - 4x) + 4x = 10$

C. $8(2 - 2x) + 16x = 9$

D. $6(3 - 2x) + 12x = 18$

153. Which value of x satisfies the equation $2(5x + 1) - 2x = 2 - 2(3x + 1)$?

A. $-\frac{1}{4}$

B. $-\frac{1}{7}$

C. $\frac{1}{9}$

D. $\frac{1}{7}$

154. What value of x makes the equation below true?

$$2(x + 5) = 6x + 2$$

A. $\frac{1}{2}$

B. $\frac{3}{4}$

C. 1

D. 2

155.

What is the solution to the equation $\frac{3}{5} - \frac{3}{5}\left(\frac{x}{2} - 3\right) = \frac{3}{2}\left(\frac{x}{5} - 1\right) - 3$?

A. $\frac{8}{3}$

B. 8

C. $\frac{23}{2}$

D. 14

156. The equation $-2x + 3 = 6 - 2x$ has no solution. Which step would change the given equation so that it has infinitely many solutions?

A. adding 3 to the left side of the equation

B. adding 6 to the left side of the equation

C. subtracting 3 from the left side of the equation

D. subtracting 6 from the left side of the equation

157. Which is the value of x in the equation below?

$$\frac{2x - 3}{10} = \frac{1}{2}x + \frac{3}{5}$$

A. -3

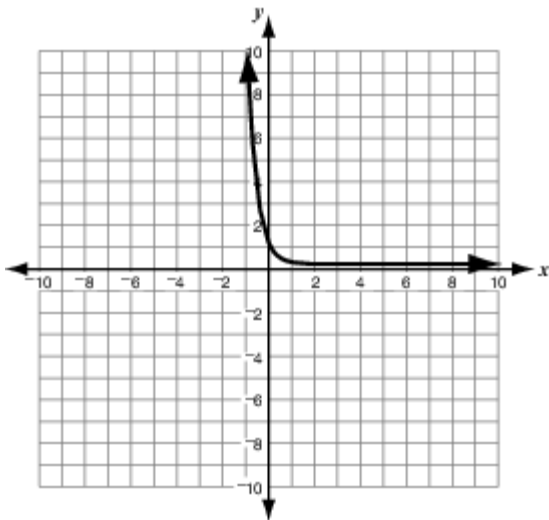
B. $-\frac{6}{5}$

C. $\frac{6}{5}$

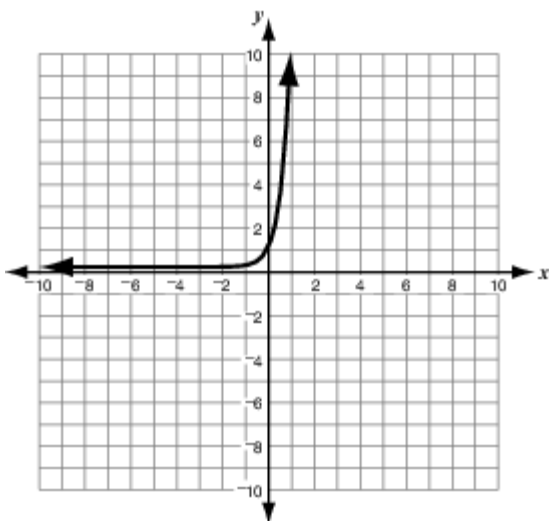
D. 3

158. Which of these functions increases at the fastest rate?

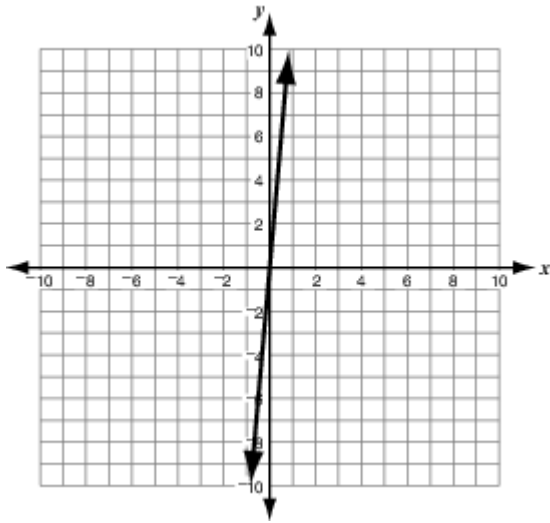
A.



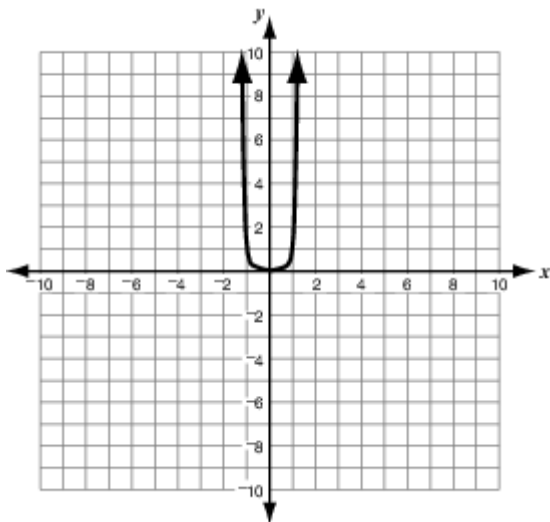
B.



C.



D.



159. The population of a city after x years is modeled by the equation $y = 20000(1.10)^x$.
What does 1.10 represent in this equation?

A. The initial population of the city is 110.

B. The initial population of the city is 20,000.

C. The population of the city is increasing by 10% each year.

D. The population of the city is increasing by 110% each year.

160. George is comparing the graphs of two functions $f(x) = 3^x$ and $g(x) = 3x^2 + x - 1$ for different values of x . Which statement **best** compares the values of the functions as the value of x increases?

- A. $f(x)$ will eventually exceed $g(x)$ for all real numbers greater than a certain x -value.
- B. $g(x)$ will eventually exceed $f(x)$ for all real numbers greater than a certain x -value.
- C. $f(x)$ is greater than $g(x)$ for all values of x .
- D. $g(x)$ is greater than $f(x)$ for all values of x .