TEST NAME: **REI.3 NEW**
TEST ID: **743439**
GRADE: **09 - Ninth Grade**
SUBJECT: **Mathematics**
TEST CATEGORY: **School Assessment**

Student: _____

Class: _____

Date: _____

1. **What is the solution to the inequality** $-y + 10 > -(3y + 4)$?

   A. $y > 3$

   B. $y > -\dfrac{3}{2}$

   C. $y > -3$

   D. $y > -7$

2. **Which equation is equivalent to** $10 = \dfrac{3}{2}(2x + 4)$?

   A. $10 = 3x + 2$

   B. $10 = 3x + 4$

   C. $10 = 3x + 6$

   D. $10 = 3x + 12$

3. **The Rubios, O'Connors and James families went on a trip to a museum. Tickets are $7 per child, _c_, and $10 per adult, _a_. The equation below can be used to find _t_, the total cost of the trip including a transportation cost of $35.**

   $t = 7c + 10a + 35$

   If the total cost of the trip was $134 and 7 children attended the trip, how many adults attended the trip?

   A. 3

   B. 4

   C. 5

   D. 6

4. **Which graph represents the solution to the inequality** $3 \leq 2 - \dfrac{x}{3} < \dfrac{7}{2}$?

   A.

   B.

   C.

   D.
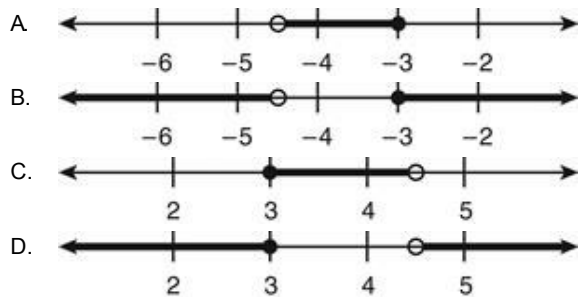

5. **Which equation is equivalent to** $4(6x - 2) + 1 = 5(4x - 1)$?

   A. $24x - 7 = 20x - 5$

   B. $24x - 1 = 20x - 1$

   C. $24x - 4 = 20x - 5$

   D. $24x + 9 = 20x + 5$

6. The student council of a school wants to buy custom T-shirts with the school mascot printed on the shirts in 3 colors. They are buying the T-shirts from a company that charges $4.95 per shirt plus $0.45 per color used on each shirt. The company also charges an initial set-up fee of $55.00. The equation $c = (4.95 + 1.35)n + 55$ is used to compute c, the total cost of purchasing n shirts. What is the greatest number of T-shirts the student council can purchase from this company for $533.80?

   A. 76
   B. 93
   C. 96
   D. 118

7. Which graph represents the solution to $4x + 1 \geq 9?$

   A.

   B.

   C.

   D.
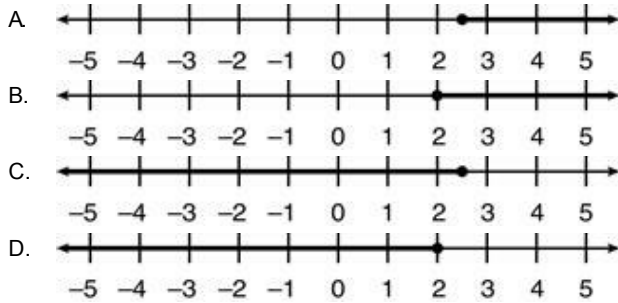
8. The distance d, in miles, that sound travels in t seconds can be modeled by the equation $d = 0.2t$. According to this model, how many seconds will it take to hear thunder from a storm that is 4 miles away?

   A. 20
   B. 8
   C. 2
   D. 0.8

9. What value of x satisfies the equation $4(x - 1) - 2 = 2(x - 5)$?

   A. $^-2$

   B. $^-1$

   C. 4

   D. 16

10. If $2(x + 3) = 20$, then $x =$

    A. 6
    B. 7
    C. 14
    D. 15

11. What is the value of *x* in the equation *Ax* + 4*Ax* = 51 + 2*Ax*?

A. $x = \dfrac{17}{A}$

B. $x = \dfrac{51}{2A}$

C. $x = \dfrac{51}{7A}$

D. $x = \dfrac{51}{A}$

12. **Which of the following statements is true for the equation** $3x + 4 = 12x + 16$?

A. The equation is never true.
B. The equation is true for all values of *x*.
C. The equation is true for a single positive value of *x*.
D. The equation is true for a single negative value of *x*.

13. If $3x = \dfrac{1}{15}$, then $x =$

A. $\dfrac{1}{45}$

B. $\dfrac{1}{5}$

C. 5

D. 45

14. **In the inequality below, let *x* represent the number of pies a bakery makes each day.**

$3x + 18 \leq 300$

Which of the following phrases most accurately describes the number of pies the bakery makes each day?

A. more than 94 pies
B. exactly 94 pies
C. at most 94 pies
D. less than 94 pies

15. **Which equation is equivalent to** $10x - 3(2x + 2) = 30$?

A. $4x - 6 = 30$
B. $4x - 2 = 30$
C. $4x + 2 = 30$
D. $4x + 6 = 30$

16. The members of the Math Club are buying T-shirts. The shirts will cost $5.00 each plus a one-time fee of $20.00 for the design of the shirt. The total order can be at most $170. The inequality $5n + 20 \leq 170$ can be solved to determine *n*, the number of T-shirts that can be purchased. Which inequality best represents the solution?

A. $n \geq 30$

B. $n \leq 30$

C. $n \geq 38$

D. $n \leq 38$

17. Which of the following expresses all the solutions for the inequality below?

$6b < 12 + 3b$ or $6 - 2b > 12$

A. $b < -3$

B. $b < 4$

C. $-3 < b < 4$

D. $b < -3$ or $b > 4$

18. If $8x + 6 = 5x + 30$, then $x =$

A. 8

B. 6

C. 5

D. 3

19. Which equation is equivalent to $5y + 3(2y) + 35 = 103 - y$?

A. $5y + 41 = 103 - y$

B. $5y + 40 = 103 - y$

C. $11y + 35 = 103 - y$

D. $16y + 35 = 103 - y$

20. Chris uses the equation $C = 2h + 4$ to find the total cost, *C*, in dollars, of renting a boat for *h* hours. If Chris does not spend more than $30, what is the maximum number of hours she can rent the boat?

A. 24

B. 17

C. 13

D. 11

21. Chris uses the equation $C = 3h + 6$ to find the total cost, *C*, in dollars of renting a go-cart for *h* hours. If Chris does not spend more than $36, what is the maximum number of hours she can rent the go-cart?

A. 27

B. 14

C. 10

D. 6

22. **Which equation is equivalent to** $5(x + 3) + 10x + 25(2x) = 340$?

    A. $42x + 3 = 340$
    B. $42x + 15 = 340$
    C. $65x + 3 = 340$
    D. $65x + 15 = 340$

23. **Wendy solved an equation and found x to be 5. Which equation could she have solved?**

    A. $2x + 4 = 12$
    B. $13 - 4x = 20$
    C. $3x - 10 = 5x + 20$
    D. $14 + 2x = 54 - 6x$

24. **What is the value of x in the equation below?**

$$\frac{5}{7}(14 - 21x) = 115$$

    A. -7
    B. -1
    C. 1
    D. 7

25. **Which inequality below represents all of the solutions for the inequality** $12 - 5(3r + 4) \leq 22$?

    A. $r \leq -\frac{2}{7}$
    B. $r \geq -\frac{2}{7}$
    C. $r \leq -2$
    D. $r \geq -2$

26. **Solve:** $\dfrac{18x + 36}{3} = -4\left(4 - 2x\right)$

    A. $x = -\frac{26}{5}$
    B. $x = -\frac{21}{5}$
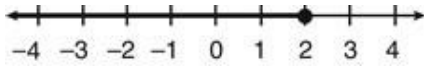   C. $x = -2$
    D. $x = 14$

27. **What is the solution to the equation** $\dfrac{3x - 4}{7} = 5$?

    A. $x = 16$
    B. $x = 13$
    C. $x = \frac{31}{3}$
    D. $x = \frac{16}{3}$

28. **Which equation is equivalent to** $-8(x - 4) = 6x$?

    A. $-8x + 32 = 6x$

    B. $-8x + 4 = 6x$

    C. $-8x - 4 = 6x$

    D. $-8x - 32 = 6x$

29. **The number line represents the solution to which inequality?**

    A. $9 \le 2x + 5$

    B. $8x + 2 < 18$

    C. $-8x + 20 \ge -2(x - 4)$

    D. $7(x + 2) \le 4(2x + 3)$

30. What is the solution set for $3x - 6 \le {}^{-}2x + 4$?

    A. $x \le {}^{-}2$

    B. $x \le \dfrac{{}^{-}2}{5}$

    C. $x \le \dfrac{2}{5}$

    D. $x \le 2$

31. **At 18 feet above ground level, Ryan stepped onto an escalator that descends at a constant rate of 1.5 feet per second. Ryan's distance from the ground is given by the following formula, where *d* is the distance from the ground, in feet, and *n* is the number of seconds he has been on the escalator.**

$$d = 18 - 1.5n$$

In how many seconds after Ryan steps onto the escalator will he be 8.25 feet from the ground?

    A. 5.5 seconds

    B. 6.5 seconds

    C. 12.5 seconds

    D. 17.5 seconds

32. **If** $-5x + 7 = 2x - 3$, **then what is** *x*?

    A. $-\dfrac{4}{3}$

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

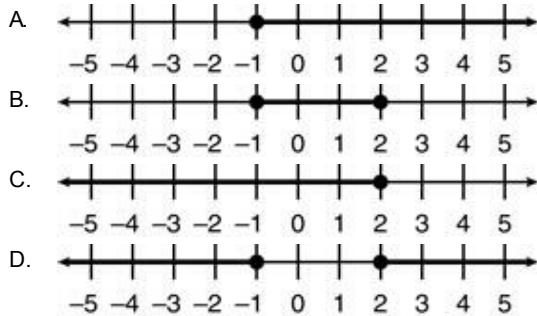   C. $\dfrac{10}{7}$

    D. $\dfrac{10}{3}$

33. **Hillary's bank will not charge her a service fee if she keeps at least $725 in her bank account. On Monday, her account balance was $810.28, and she withdrew $25. Hillary wrote the inequality below to find *x*, the amount she can withdraw and still avoid paying the service fee.**

$810.28 - 25 - x \geq 725$
What is the maximum amount of money she can withdraw and not be charged with a service fee?

A. $35.28

B. $60.28

C. $85.28

D. $110.28

34. **Which graph shows the solution for the compound inequality** $9x - 4 \leq -13$ **or** $x + 3 \geq 5$?

A.

    -5 -4 -3 -2 -1 0 1 2 3 4 5

B.

    -5 -4 -3 -2 -1 0 1 2 3 4 5

C.

    -5 -4 -3 -2 -1 0 1 2 3 4 5

D.

    -5 -4 -3 -2 -1 0 1 2 3 4 5

35. **Which equation is equivalent to** $0.4a + 0.1(20 - a) = 3.6$?

A. $-a + 10 = 3.6$

B. $-0.6a + 2 = 3.6$

C. $-0.5a + 10 = 3.6$

D. $0.3a + 2 = 3.6$

36. **Which of the following expresses all of the solutions for the compound inequality below?**

$3(z - 8) \geq 3 \text{ and } 5 \geq 2 + 3z$

A. no solution

B. 1 and 9

C. $1 \leq z \leq 9$

D. $z \leq 1 \text{ or } z \geq 9$

37. **Which inequality is equivalent to** $-2(y - 8) \leq 15 - y + 10$?

A. $-2y - 8 \leq 5 - y$

B. $-2y + 16 \leq 5 - y$

C. $-2y - 8 \leq 25 - y$

D. $-2y + 16 \leq 25 - y$

38. Hope uses the equation $C = 3h + 9$ to find the total cost, C, in dollars, of renting a bike for h hours. If Hope does not spend more than $30, what is the maximum number of hours she can rent the bike?

    A.   18
    B.   13
    C.   10
    D.   7

39. What is the value of x?

$$\frac{1.75}{50} = \frac{x}{120}$$

    A.   4.1
    B.   4.2
    C.   4.5
    D.   4.8

40. Sylvia bought 2 DVDs for $3 each and is going to resell them. The total profit (in dollars) she will earn on the DVDs is given by P in the formula below, where s represents the resale price of each DVD.

$$P = 2(s - 3)$$

In order for Sylvia to earn a total profit of $4.80, what is the resale price of each DVD?

    A. $7.80
    B. $5.40
    C. $3.90
    D. $3.60

41. What value of p will make the equation $\frac{4p}{4} - \frac{2p}{3} = 10$ true?

    A. $\frac{5}{2}$
    B.   5
    C.   30
    D.   60

42. Solve the following equation for z.

$$6 - \frac{1}{2}z = \frac{2}{3}$$

    A. -32
    B. $-\frac{16}{3}$
    C.   4
    D. $\frac{32}{3}$

43. **Solve** $\dfrac{3w-1}{3} - \dfrac{2w+1}{3} = 1.$

   A. $w=1$

   B. $w=3$

   C. $w=5$

   D. $w=8$

44. Look at the equation.

$$5a + ax = 17$$

Damien correctly solved the equation for *a*. Which equation could represent Damien's equation?

   A. $a = 17(5 + x)$

   B. $a = \dfrac{17}{5}x$

   C. $a = \dfrac{17}{5x}$

   D. $a = \dfrac{17}{5+x}$

45. **The following formula can be used to convert a temperature in degrees Fahrenheit, *F*, to a temperature in degrees Celsius, *C*.**

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

What temperature in degrees Fahrenheit is equal to 30 degrees Celsius?

   A. $F = 22°$

   B. $F = 47.6°$

   C. $F = 60.4°$

   D. $F = 86°$

46. What is the value of *y* if $\dfrac{3y}{2} + \dfrac{Ky}{4} = 6$?

   A. $y = \dfrac{24}{6+K}$

   B. $y = \dfrac{6}{6+K}$

   C. $y = 2\left(\dfrac{6}{3+K}\right)$

   D. $y = 4\left(\dfrac{6}{3+K}\right)$

47. **What is the solution for** $-6x + 9 \leq 2 - 5(x + 1)$?

   A. $x \leq 4$

   B. $x \geq 4$

   C. $12 \leq x$

   D. $12 \geq x$

48. **Which equation is equivalent to** $5 + 2(x + 3) = 10$?

   A. $2x + 8 = 10$

   B. $2x + 11 = 10$

   C. $7x + 3 = 10$

   D. $7x + 21 = 10$

49. **For which values of *y* is the inequality** $12 - y > y - 12$ **true?**

   A. $y > -12$

   B. $y < -12$

   C. $y > 12$

   D. $y < 12$

50. **Which equation is equivalent to** $6(2x + 4) + 8x + 18(2x) = 424$?

   A. $40x + 4 = 424$

   B. $40x + 24 = 424$

   C. $56x + 4 = 424$

   D. $56x + 24 = 424$

51. What is the solution to the inequality $^-2(1 - 4x) + 5 \geq 1 - (x + 9)$?

   A. $x \geq \dfrac{17}{9}$

   B. $x \geq \dfrac{4}{9}$

   C. $x \geq \dfrac{^-11}{9}$

   D. $x \leq \dfrac{^-10}{7}$

52. **Which of the following inequalities is equivalent to** $5(2x - 3) - 6x \leq 30$?

   A. $4x - 3 \leq 30$

   B. $4x - 15 \leq 30$

   C. $10x - 21 \leq 30$

   D. $16x - 15 \leq 30$

53. **Which expresses all numbers that are solutions for this compound inequality?**

$2(y - 6) \geq 8$ and $4 \geq 1 + 3y$

A. no solution
B. 1 and 10
C. $1 \leq y \leq 10$
D. $y \leq 1$ or $y \geq 10$

54. **Which expression is equivalent to** $2x + 3 < 9$?
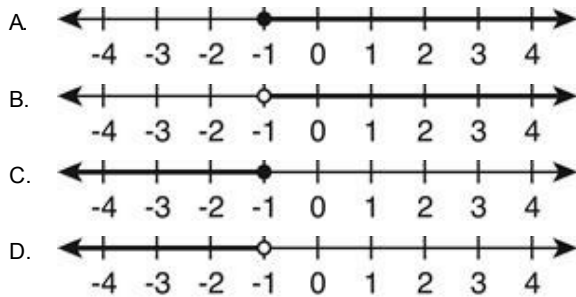
A. $x > 9$
B. $x < 3$
C. $x > 3$
D. $x < 9$

55. **Which inequality is equivalent to** $-x < -1$?

A. $x < 1$
B. $x > 1$
C. $x > -1$
D. $x < -1$

56. **Which of the following represents the solution to** $-3x + 12 \leq 15$?

A.
B.
C.
D.

57. **Bernice uses the equation** $C = 2h + 8$ **to find the total cost, C, in dollars, of renting a boat for h hours. If Bernice does not spend more than $32, what is the maximum number of hours she can rent the boat?**

A. 8
B. 12
C. 20
D. 22

58. **Which numbers are included in the solution set of the inequality** $10x + 20 \geq 50$?

$\{2, 3, 4, 5, 6\}$

A. $\{2\}$
B. $\{2, 3\}$
C. $\{2, 3, 4, 5, 6\}$
D. $\{3, 4, 5, 6\}$

59. **Which equation is equivalent to** $9(b - 3) = 6(b + 3) + 4$?

    A. $9b - 3 = 6b + 7$
    B. $9b - 3 = 6b + 12$
    C. $9b - 27 = 6b + 22$
    D. $9b - 27 = 6b + 42$

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

    A. $-\dfrac{3}{2}$
    B. 1
    C. $\dfrac{7}{2}$
    D. 6

61. **In this inequality, let _y_ represent the number of pies a bakery makes each day.**

    $2y + 16 \leq 170$

    Which phrase most accurately describes the number of pies the bakery makes each day?

    A. at most 77 pies
    B. exactly 77 pies
    C. more than 77 pies
    D. less than 77 pies

62. **What value of _x_ makes the following equation true?**

    $\dfrac{2x - 3}{3} = \dfrac{x + 1}{4}$

    A. $x = 2\dfrac{3}{5}$
    B. $x = 3$
    C. $x = 5$
    D. $x = 5\dfrac{1}{3}$

63. **Which equation is equivalent to** $\dfrac{3}{4}(y - 4) + 2 = y - 4$?

    A. $\dfrac{3}{4}y - 1 = y - 4$
    B. $\dfrac{3}{4}y - 2 = y - 4$
   C. $3y - 1 = y - 4$
    D. $3y - 10 = y - 4$

64. **What expresses all the solutions to** $-2 \le 8 - 2x < 6$?

   A. $-3 < x \le 5$

   B. $x < -3$ or $x \ge 5$

   C. $1 < x \le 5$

   D. $x < 1$ or $x \ge 5$

65. **Which inequality is the solution to** $-32 \le 4x + 12 < 64$?

   A. $-48 \le x < 48$

   B. $-11 \le x < 13$

   C. $-5 \le x < 19$

   D. $-2 \le x < 4$

66. **Which value for *x* makes the equation** $7(2 - x) - 5(x - 1) = -6x + 1$ **true?**

   A. -1

   B. 1

   C. 2

   D. 3

67. What is the solution to 3 − (*x* + 1) = 5*x* + 6 − 7*x*?

   A. $x = {}^{-}3$

   B. $x = 1$

   C. $x = 2$

   D. $x = 4$

68. **What is the value of *x* if 15 − 2(*x* + 5) = 25?**

   A. -15

   B. -10

   C. 10

   D. 15

69. **Which equation is equivalent to** $7(b - 4) = 5(b + 4) + 6$?

   A. $7b - 4 = 5b + 10$

   B. $7b - 4 = 5b + 24$

   C. $7b - 28 = 5b + 26$

   D. $7b - 28 = 5b + 50$

70. An airplane carries up to 112 passengers per flight. Last month, the airplane transported 2,654 passengers. On one flight last month, it transported 48 passengers. The relationship between the capacity of the airplane and the total number of flights it made last month (f) is given by the inequality below.

$$\frac{2,654 - 48}{f - 1} \le 112$$

What is the least possible number of flights the airplane could have made last month?

A. 23
B. 24
C. 25
D. 26

71. Which value for x makes the equation $4(x - 1) - 2x = 6$ true?

A. 1
B. 2.5
C. 3.5
D. 5

72. The width of a rectangle is 25 units. The inequality $50 + 2l \ge 140$ can be used to determine l, all possible values of the length of the rectangle if the perimeter is at least 140 units. Which graph best represents the solution to the inequality?

A.
B.
C.
D.
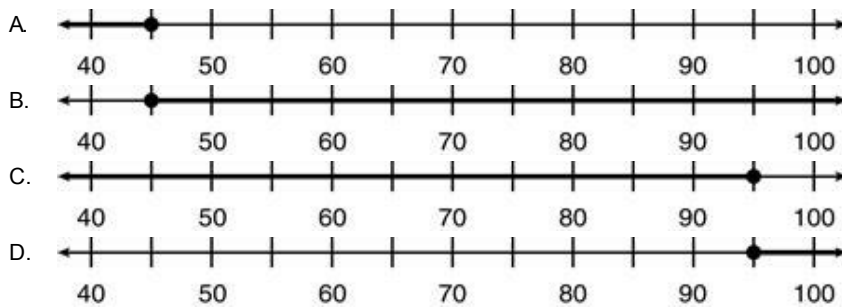
73. What is the value of x in the equation $-(1 - x) = -2(3x - 1)$?

A. $-\frac{1}{7}$
B. $-\frac{1}{5}$
C. $\frac{3}{5}$
D. $\frac{3}{7}$

74. If $-5x + 7 = -2x - 3$, then $x =$

A. $-\frac{10}{3}$
B. $-\frac{4}{3}$
C. $\frac{10}{7}$
D. $\frac{10}{3}$

75. **What is x if** $-\dfrac{x}{12} + 13 < 15$?

   A. $x < -24$
   B. $x > -24$
   C. $x < -336$
   D. $x > -336$

76. **Which of the following inequalities is equivalent to** $14 > 1 - 5(x - 2)$?

   A. $14 > -4x - 2$
   B. $14 > -4x + 8$
   C. $14 > -5x - 1$
   D. $14 > -5x + 11$

77. What is the solution to the inequality $^-5(3x + 4) - 10x > 12(x - 9) + 3x$?

   A. $x < 2.2$

   B. $x > 2.2$

   C. $x < 0.325$

   D. $x > 0.325$

78. Which expression represents the value of x in the equation
$px + 8 = qx - 10$?

   A. $^-18(p - q)$

   B. $\dfrac{18}{p - q}$

   C. $\dfrac{18}{q - p}$

   D. $\dfrac{18}{p + q}$

79. **Which equation is equivalent to** $10x - 5 + 7x = 15 - 2x + 4$?

   A. $-2x = 9$
   B. $12x = 17$
   C. $3x - 5 = 11 - 2x$
   D. $17x - 5 = 19 - 2x$

80. If $2x - 9 = 15 - x,$ then $x =$

   A. 2
   B. 4
   C. 6
   D. 8

81. What is the value of x in the equation $\frac{2}{3}x + 9 = 18$?

   A. 6.0

   B. 13.5

   C. 18.0

   D. 40.5

82. **Which equation is equivalent to** $6(2a - 3) - 2(a - 9) + 6a = 7$?

   A. $10a = 7$
   B. $16a = 7$
   C. $16a - 12 = 7$
   D. $16a - 36 = 7$

83. **Which of the following statements is true for the equation** $5x - 7 = 0.1x - 0.14$?

   A. The equation is never true.
   B. The equation is true for $x = 1.4.$
   C. The equation is true for $x = -1.4.$
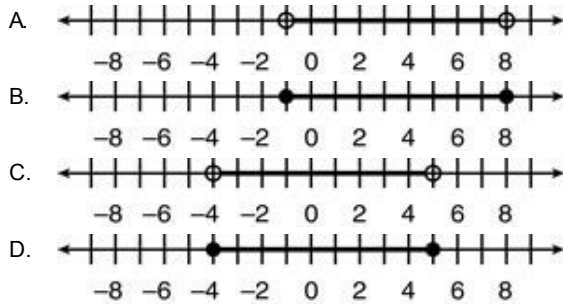   D. The equation is true for all values of x.

84. If $4(n - 3) + 2n = 12,$ what is the value of n?

   A. $1\frac{1}{2}$
   B. 4
   C. 6
   D. $7\frac{1}{2}$

85. **What is a solution to** $\frac{x}{3} = \frac{8 + x}{5}$?

   A. $x = 3$
   B. $x = 4$
   C. $x = 6$
   D. $x = 12$

86. **Which graph best represents the solution to** $-10 < 4x - 6 < 26$?

A.
```
←|┼┼┼┼┼┼┼┼┼◇┼┼┼┼┼┼┼┼◇┼→
  -8 -6 -4 -2  0  2  4  6  8
```

B.
```
←|┼┼┼┼┼┼┼┼●┼┼┼┼┼┼┼┼●┼→
  -8 -6 -4 -2  0  2  4  6  8
```

C.
```
←|┼┼┼┼┼◇┼┼┼┼┼┼┼┼┼◇┼┼┼┼→
  -8 -6 -4 -2  0  2  4  6  8
```

D.
```
←|┼┼┼┼┼●┼┼┼┼┼┼┼┼●┼┼┼┼→
  -8 -6 -4 -2  0  2  4  6  8
```

87. **What is the value of x when** $\dfrac{4x}{5} = \dfrac{x+3}{6}$?

A. $\dfrac{3}{29}$

B. $\dfrac{15}{29}$

C. $\dfrac{3}{19}$

D. $\dfrac{15}{19}$

88. **The expression** $100 - 5n$ **represents the amount of money Aisha has in her account after withdrawing \$5 for lunch n times. Which inequality represents all of the values of n for which** $100 - 5n \geq 40$?

A. $0 \leq n \leq 12$

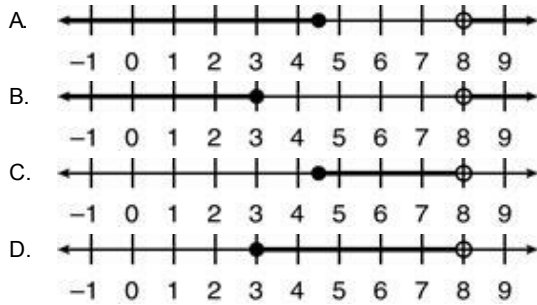B. $0 \geq n \geq 12$

C. $0 \leq n \leq 28$

D. $0 \geq n \geq 28$

89. **Which equation is equivalent to** $4(2 - x) = 5x - (3x + 8)$?

A. $8 - x = 2x - 8$

B. $8 - x = 2x + 8$

C. $8 - 4x = 2x - 8$

D. $8 - 4x = 2x + 8$

90. **Which equation is equivalent to** $\dfrac{3(y - 2)}{5} = 4$?

A. $15y - 30 = 20$

B. $15y - 30 = 4$

C. $3y - 6 = 20$

D. $3y - 6 = 4$

91. **Which number line represents the solution to** $15 \le 4x + 3 < 35?$

A.

-1 0 1 2 3 4 5 6 7 8 9

B.

-1 0 1 2 3 4 5 6 7 8 9

C.

-1 0 1 2 3 4 5 6 7 8 9

D.

-1 0 1 2 3 4 5 6 7 8 9

92. **In the inequality, let *x* represent the number of pies a bakery makes each day.**

$5x + 20 \le 280$

Which phrase most accurately describes the number of pies the bakery makes each day?

A. at most 52 pies
B. exactly 52 pies
C. less than 52 pies
D. more than 52 pies

93. What is the solution to the equation $^{-}3x + 17 = 12 - x?$

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

B. $\frac{2}{5}$

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

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

94. **Which of the following statements is true for the equation** $\frac{x}{2} + 3 = x + 6?$

A. The equation is never true.
B. The equation is only true for $x = 6$.
C. The equation is only true for $x = -6$.
D. The equation is true for all real numbers.

95. **Which of the following graphs represents the solution set of the inequality** $-3 \le x + 1 \le 3?$

A.

-5 -4 -3 -2 -1 0 1 2 3 4 5

B.

-5 -4 -3 -2 -1 0 1 2 3 4 5

C.

-5 -4 -3 -2 -1 0 1 2 3 4 5

D.

-5 -4 -3 -2 -1 0 1 2 3 4 5

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96. If $\dfrac{Ax + 12}{6} = Bx - 2$, then what is the value of x?

A. $x = \dfrac{-24}{A - 6B}$

B. $x = \dfrac{24}{A - 6B}$

C. $x = A - 6B - 24$

D. $x = A - B + 24$

97. **Which equation is equivalent to** $3(1 - x) = 2x - (6x + 3)$?

A. $3 - x = -4x - 3$

B. $3 - x = -4x + 3$

C. $3 - 3x = -4x - 3$

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

98. **Consider the procedure used below to solve the given equation.**

Given: $4(2x + 5) - (3x - 4) = 15$

Step 1: $8x + 5 - 3x + 4 = 24$

Step 2: $5x + 9 = 24$

Step 3: $5x = 24 - 9$

Step 4: $-5x = 15$

Step 5: $\dfrac{-5x}{-5} = \dfrac{15}{-5}$

Step 6: $x = -3$

Which statement about the solution of the given equation is true?

A. The first mistake was made in Step 1.
B. The first mistake was made in Step 2.
C. The first mistake was made in Step 3.
D. The answer is correct.

99. **What value of *m* makes the equation below true?**

$$6m - 8 = 2(m + 5)$$

A. $m = \dfrac{1}{2}$

B. $m = 2\dfrac{1}{4}$

C. $m = 3\dfrac{1}{4}$

D. $m = 4\dfrac{1}{2}$

100. **If** $-6x + 80 > 3x - 19,$ **and *x* is an integer, what is the greatest possible value of** $x + 5?$

A. 10

B. 11

C. 15

D. 16

101. In the equation below, *p* is a constant.

$$3px + 18 = 12px$$

Which choice shows an equation that correctly expresses *x* in terms of *p*?

A. $x = \dfrac{2}{p}$

B. $x = \dfrac{p}{2}$

C. $x = \dfrac{2p}{3}$

D. $x = \dfrac{3p}{2}$

102. **What is the value of *x* if** $24 - 2(x + 8) = 30?$

A. -11

B. -1

C. 1

D. 11

103. **Which equation is equivalent to** $-3(x + 2) = -2(2x - 3)$ **?**

    A. $-3x + 2 = -4x - 3$

    B. $-3x - 6 = -4x + 6$

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

    D. $-3x - 6 = -4x - 6$

104. **Terri is trying to determine the values of *x* that are solutions for the given inequality.**

$2x + 8 \geq 22$

Which value should Terri not include as a solution for *x*?

    A. 5

    B. 18

    C. 30

    D. 47

105. **Which of the following expresses all numbers that are solutions for the compound inequality below?**

$4(z - 7) \geq 4 \quad \text{and} \quad 2 \geq -4 + 2z$

    A. no solution

    B. 3 and 8

    C. $3 \leq z \leq 8$

    D. $z \leq 3 \text{ or } z \geq 8$

106. **Which set of inequalities describes all the solutions of** $-4 < x + 2 < 3?$

    A. $\{x > -6 \text{ or } x < 1\}$

    B. $\{x > -6 \text{ and } x < 1\}$

    C. $\{x < -6 \text{ or } x < 1\}$

    D. $\{x < -6 \text{ and } x < 1\}$

107. **What is the solution of the inequality** $-2(2x + 3) + 2 \leq -x + 5?$

    A. $x \leq -3$

    B. $x \geq -3$

    C. $x \geq 3$

    D. $x \leq 3$

108. **What is the value of *x* if** $17 - 3(x + 9) = 50?$

    A. -20

    B. -8

    C. 8

    D. 20

109. **Which equation is equivalent to** $6(a-3)+5(a-2)=4$?

   A. $6a-3+5a-2=4$
   B. $6a+3+5a+2=4$
   C. $6a-18+5a-10=4$
   D. $6a+18+5a+10=4$

110. What is the solution to the equation $\frac{2x-1}{5} = {}^-3$?

   A. $^-8$

   B. $^-7$

   C. $\dfrac{1}{5}$

   D. $\dfrac{3}{2}$

111. **In the inequality, let *y* represent the number of muffins a bakery makes each day.**

$4y+14 \leq 150$

Which of the following phrases most accurately describes the number of muffins the bakery makes each day?

   A. less than 34 muffins
   B. at most 34 muffins
   C. exactly 34 muffins
   D. more than 34 muffins

112. **Bertha's solution to an inequality is shown below.**

Given: $4(3x + 5) + 2 \geq 2x + 7$

Step 1: $12x + 20 + 2 \geq 2x + 7$

Step 2: $12x + 22 \geq 2x + 7$

Step 3: $12x - 2x + 22 \geq 7$

Step 4: $10x \geq 7 - 22$

Step 5: $10x \geq -15$

Step 6: $\dfrac{10x}{10} \geq \dfrac{-15}{10}$

Step 7: $x \geq -1\dfrac{1}{2}$

Which statement about Bertha's solution is true?

   A.   Bertha made a mistake in Step 1.
   B.   Bertha made a mistake in Step 2.
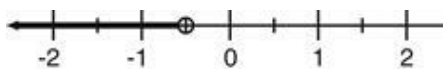   C.   Bertha made a mistake in Step 4.
   D.   Each step is correct.

113. **What is the value of y when** $\dfrac{y}{x} + 3 = x$ **and** $x = 11$?

   A.   88
   B.   118
   C.   121
   D.   154

114. Which equation shows the equation $y = bx + cx$ rearranged so that the equation is solved for *x* when $b = 0$?

   A. $x = 0$

   B. $y = cx$

   C. $x = \dfrac{y}{c}$

   D. $y - c = x$

115. **The graph shown represents the solution for which inequality?**

   A. $10x < -5$

   B. $10x > -5$

   C. $5x < -10$

   D. $5x > -10$

116. **Which equation is equivalent to** $\frac{x}{2} + \frac{x}{4} = 2$**?**

   A. $\frac{2x}{6} = 2$

   B. $\frac{2x}{6} = 8$

   C. $3x = 2$

   D. $3x = 8$

117. **Which statement is true for the inequality** $2(x - 2) < x + 2$**?**

   A. The inequality is never true.

   B. The inequality is true for all values of *x*.

   C. The inequality is only true for numbers less than 6.

   D. The inequality is only true for numbers greater than -6.

118. **Which expresses all the solutions for this inequality?**

$4d < 5 + 3d$ and $8 - 3d > 11$

   A. $d < -1$

   B. $d < 5$

   C. $-1 < d < 5$

   D. $d > -1$ or $d < 5$

119. **Which equation is equivalent to** $7x - 2 + 4x = 3 + 5x + 7$**?**

   A. $3x - 2 = 5x + 10$

   B. $3x - 2 = 8x + 7$

   C. $11x - 2 = 5x + 10$

   D. $11x - 2 = 8x + 7$

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

A. $\dfrac{17}{7}$

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

C. $\dfrac{^{-}13}{7}$

D. $\dfrac{^{-}38}{7}$

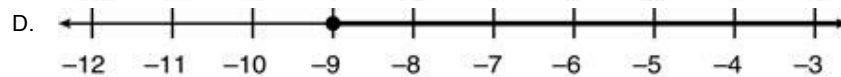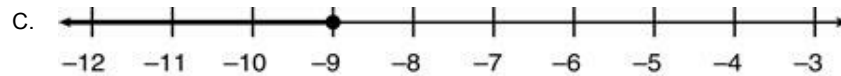121. **What values of** *x* **satisfy the inequality** $5x+2a>2x-a?$
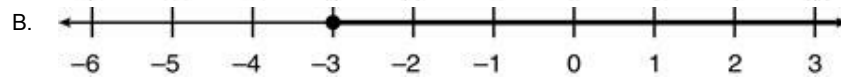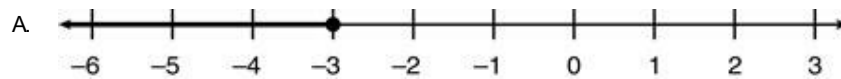
A. $x<-a$
B. $x>-a$
C. $x<a$
D. $x>a$

122. **Which graph best represents the solution to the inequality** $2-4x\geq 2x+20?$

A.

B.

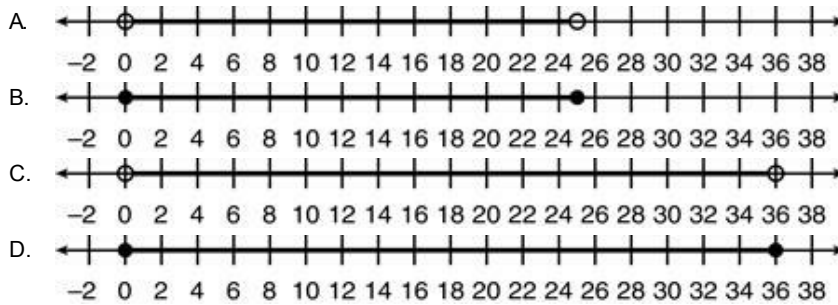
C.

D.

123. **Solve** $\dfrac{8-2x}{12}=2$ **for x.**

A. −16
B. −8
C. −4
D. −2

124. **Ryan budgets $30.00 a month for public transportation between home and school. The inequality** $0 \le 1.2x \le 30$ **can be solved to determine** x, **the number of tickets he can buy. Which graph best represents the range of values for** x?

A.

$$-2 \quad 0 \quad 2 \quad 4 \quad 6 \quad 8 \quad 10 \quad 12 \quad 14 \quad 16 \quad 18 \quad 20 \quad 22 \quad 24 \quad 26 \quad 28 \quad 30 \quad 32 \quad 34 \quad 36 \quad 38$$

B.

$$-2 \quad 0 \quad 2 \quad 4 \quad 6 \quad 8 \quad 10 \quad 12 \quad 14 \quad 16 \quad 18 \quad 20 \quad 22 \quad 24 \quad 26 \quad 28 \quad 30 \quad 32 \quad 34 \quad 36 \quad 38$$

C.

$$-2 \quad 0 \quad 2 \quad 4 \quad 6 \quad 8 \quad 10 \quad 12 \quad 14 \quad 16 \quad 18 \quad 20 \quad 22 \quad 24 \quad 26 \quad 28 \quad 30 \quad 32 \quad 34 \quad 36 \quad 38$$

D.

$$-2 \quad 0 \quad 2 \quad 4 \quad 6 \quad 8 \quad 10 \quad 12 \quad 14 \quad 16 \quad 18 \quad 20 \quad 22 \quad 24 \quad 26 \quad 28 \quad 30 \quad 32 \quad 34 \quad 36 \quad 38$$

125. **Which equation is equivalent to** $0.5x + 0.1(50 - x) = 4.5$?

A. $5 - 0.5x = 4.5$

B. $5 + 0.4x = 4.5$

C. $30 - x = 4.5$

D. $30 - 0.6x = 4.5$

126. **If** $3 - 5x = 2$, **then** $x =$

A. 1

B. $\dfrac{1}{5}$

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

D. -1

127. **On balances greater than $5,000, a savings account pays an annual interest rate of 1% on the first $5,000 and 2% on the amount of the balance exceeding $5,000. The amount of interest after 1 year when the balance is over $5,000 is given by the formula below, where** I **is the interest in dollars, and** x **is the present balance in dollars.**

$$I = 0.01(5,000) + 0.02(x - 5,000)$$

What is the present balance needed in the account in order for the amount of interest to be $300?

A. $5,005

B. $10,000

C. $12,500

D. $17,500

128. **Christina earns $20 per hour tutoring but will spend $30 on related expenses this month. The inequality** $170 < 20h - 30 < 200$ **can be used to find** h, **the number of hours she needs to tutor to earn between $170 and $200 this month. Which inequality represents the number of hours Christina needs to work?**

A. $7 < h < 8.5$

B. $7 < h < 11.5$

C. $8.5 < h < 10$

D. $10 < h < 11.5$

129. **What is the solution of the equation** $5x - 3(2x + 1) = 25 - 3x?$

    A. $x = 7$

    B. $x = 11$

    C. $x = 13$

    D. $x = 14$

130. **Which number line represents the solution to the inequality** $1 + 2x < -7?$

    A.

    B.

    C.

    D.
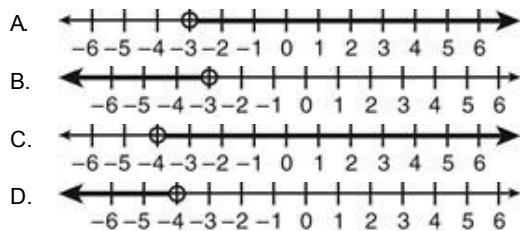
131. **The population of Boca Raton can be predicted using the function** $p(n) = 74,760 + 1940n,$ **where _n_ is the number of years since 2000. In what year will the predicted population of Boca Raton reach 100,000?**

    A. 2013

    B. 2038

    C. 2051

    D. 2090

132. **Which of the following inequalities is equivalent to** $3 - (w + 2) > 4 + 2w$ **?**

    A. $1 - w > 6w$

    B. $5 - w > 6w$

    C. $1 - w > 4 + 2w$

    D. $5 - w > 4 + 2w$

133. **What is the value of _x_ in the following equation?**

$$20 = 3 - 5(x + 1)$$

    A. -11

    B. $-\dfrac{19}{2}$

    C. $-\dfrac{22}{5}$

    D. $-\dfrac{16}{5}$

134. **Given the set of numbers** $\{2, 8, 9, 10, 11, 12, 13\},$ **which set below contains all possible solutions to the inequality** $\dfrac{6+x}{2} < 10?$

    A. $\{2\}$

    B. $\{2, 8, 9\}$

    C. $\{2, 8, 9, 10, 11, 12, 13\}$

    D. $\{11, 12, 13\}$

135. What is the solution to y in the inequality $4(x + y) - 10 \geq x + 6y - 4$?

A.
$$y \leq \frac{^-3x + 6}{^-5}$$

B.
$$y \geq \frac{^-3x + 6}{^-5}$$

C.
$$y \leq \frac{3}{2}x - 3$$

D.
$$y \geq \frac{3}{2}x - 3$$

136. **Which of the following sets of values for x satisfies the inequality below?**

$2x + 1.5 < 12$

A. {2.5, 3.5, 6}
B. {3.75, 5, 5.5}
C. {4.25, 4.5, 5}
D. {4.5, 4.75, 5.25}

137. **What is the value of x in the following equation?**

$5x + 15 = 7x - 13$

A. -14
B. -1
C. 1
D. 14

138. **Which inequality is the solution to** $7x + 13 + 2(5x - 3) > 7$?

A. $x > -17$
B. $x > 0$
C. $x > 1$
D. $x > 17$

139. **If $4(x - 3) = 5x + 2$, then $x =$**

A. -14
B. -5
C. -1
D. $-\frac{1}{9}$

140. **Solve** $-4(2y + 3) \le 20 - 4y$.

A. $y \le -8$

B. $y \ge -8$

C. $y \ge -\dfrac{17}{4}$

D. $y \ge -2$

141. **Which of these inequalities expresses all the solutions to** $1 \le 4 - x < 8$?

A. $-8 < x \le 3$

B. $-4 < x \le 3$

C. $x \le -4 \text{ or } x \ge 3$

D. $x \le -8 \text{ or } x \ge -3$

142. **What is the value of x in this equation?**

$$\frac{16x + 24}{4} = -5(2 - 3x)$$

A. $x = -34$

B. $x = -\dfrac{64}{19}$

C. $x = -\dfrac{16}{19}$

D. $x = \dfrac{16}{11}$

143. **Which inequality shows all the solutions to the inequality below?**

$$-16x + 5 \le -20 - x$$

A. $x \le -\dfrac{5}{3}$

B. $x \ge -\dfrac{5}{3}$

C. $x \le \dfrac{5}{3}$

D. $x \ge \dfrac{5}{3}$

144. **What value of y makes the equation** $15 - (y + 1) = 2 + y$ **true?**

A. 0

B. 6

C. 8

D. 12

145. **Which of these inequalities expresses all the solutions to** $4 \le 8 - 2x < 6?$

    A. $-3 < x \le 2$

    B. $x \le -3 \text{ or } x \ge 2$

    C. $1 < x \le 2$

    D. $x \le 1 \text{ or } x \ge 2$

146. **Solve** $\dfrac{9x + 22}{4} = -2(3 - 4x).$

    A. $x = -28$

    B. $x = -\dfrac{46}{13}$

    C. $x = -\dfrac{46}{41}$

    D. $x = 2$

147. **Consider the procedure used below to solve the given equation.**

Given: $5(2x - 5) + 2x + 8 = 43$

Step 1: $10x - 25 + 2x + 8 = 43$

Step 2: $12x - 17 = 43$

Step 3: $12x = 43 + 17$

Step 4: $12x = 60$

Step 5: $x = 5$

Which statement about the solution of the given equation is true?

    A.   The first mistake was made in Step 1.

    B.   The first mistake was made in Step 2.

    C.   The first mistake was made in Step 3.

    D.   Each step is correct.

148. **Which expression represents all the solutions to the inequality** $3(2x - 8) > 4x + 26?$

    A. $x > 0.2$

    B. $x > 1.8$

    C. $x > 17$

    D. $x > 25$

149. **If** $2x - 3x + 20 + 5x - 40 = 4,$ **what is the value of** *x*?

    A.   6

    B.   8

    C.   16
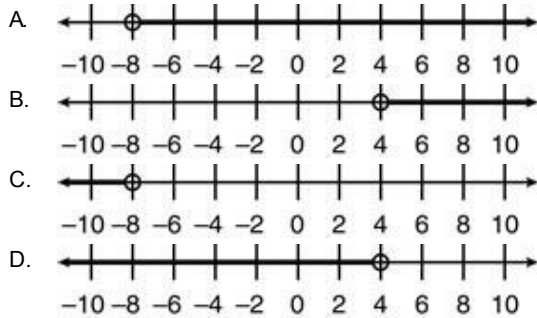
    D.   18

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150. **In the inequality below, let *y* represent the number of cakes a bakery makes each day.**

$$2y + 20 \le 210$$

Which phrase most accurately describes the number of cakes the bakery makes each day?

A. more than 95 cakes

B. exactly 95 cakes

C. at most 95 cakes

D. less than 95 cakes

151. **Which number line represents the solution to the inequality** $\frac{3x-4}{5} - \frac{x}{2} < \frac{x}{5}$?

A.

-10 -8 -6 -4 -2 0 2 4 6 8 10

B.

-10 -8 -6 -4 -2 0 2 4 6 8 10

C.

-10 -8 -6 -4 -2 0 2 4 6 8 10

D.

-10 -8 -6 -4 -2 0 2 4 6 8 10

152. **Which equation is equivalent to** $\frac{2n+1}{3} - 8n = 5$?

A. $2n + 1 - 8n = 15$

B. $2n + 1 - 24n = 15$

C. $6n + 3 - 8n = 15$

D. $6n + 3 - 24n = 15$

153. **What is the value of *x* if** $\frac{x}{2} + \frac{Gx}{8} = \frac{14}{4}$?

A. $x = 24 - G$

B. $x = 32 + G$

C. $x = \dfrac{7}{G}$

D. $x = \dfrac{28}{4+G}$

154. **Which value for *x* makes the equation** $3(x+4) + 5(x-2) = 4(x-1) + 2$ **true?**

A. -1

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

C. 0

D. $\dfrac{1}{2}$

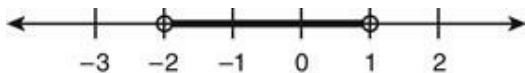155. **Which equation is equivalent to** $6 + 3(m + 2) = 4$?

    A. $2 + 9m = 4$

    B. $8 + 3m = 4$

    C. $12 + 3m = 4$

    D. $18 + 9m = 4$

156. **What are all the possible values of *x* in the following inequality?**

$$-15 > 7x + 20$$

    A. $x < -5$

    B. $x > -5$

    C. $x < \dfrac{5}{7}$

    D. $x > \dfrac{5}{7}$

157. **Which inequality does this graph represent?**

    A. $\dfrac{1}{3} < \dfrac{2x+5}{3} < 1$

    B. $1 < \dfrac{2x+7}{3} < 3$

    C. $\dfrac{1}{2} < \dfrac{x}{2} + 1 < 1$

    D. $-2 < \dfrac{x+1}{5} < 1$

158. **Which of the following statements is true for the equation** $2x + 2 = 3x + 1$?

    A. The equation is never true.

    B. The equation is only true for $x = 1$.

    C. The equation is true for all values of *x*.

    D. The equation is true for all values except $x = 1$.

159. **Roger's goal is to earn a 90 in his algebra class. His teacher uses the following equation to determine semester averages, where *A* is the semester average, *f* is the first nine weeks' grade, *s* is the second nine weeks' grade, and e is the final exam score.**

$$\frac{3(f+s)+e}{7} = A$$

Roger made an 88 the first nine weeks and a 91 the second nine weeks. What is the minimum score he needs on the final exam to have a semester average of 90?

    A. 89

    B. 91

    C. 93

    D. 95

160. Gina works for a cup packaging company that has derived the equation $h = 1.1n + 8.7$ to determine h, the height in centimeters of a stack of n cups. If Gina wants the package to hold a single stack of cups with a height of no more than 50 centimeters, what is the range for the number of cups the package may hold?

A. $0 < n \le 37$

B. $0 \le n \le 37$

C. $0 < n \le 38$

D. $0 < n \le 63$

161. Erin plans the following activities for a 60-minute exercise program.

Activity 1: jogging for x minutes, which burns 9 calories per minute
Activity 2: aerobic dancing for the rest of the time, which burns 7 calories per minute

The total number of calories Erin would burn, c, is given by the equation below.

$$c = 9x + 7(60 - x)$$

If Erin's goal is to burn 468 calories, what is the minimum number of minutes she needs to spend jogging?

A. 6 minutes

B. 24 minutes

C. 46 minutes

D. 52 minutes

162. Which expression represents all the solutions for the inequality $2(1 - x) < x + 1$?

A. $x < \dfrac{1}{3}$

B. $x > \dfrac{1}{3}$

C. $x < 3$

D. $x > 3$

163. For each cable service installation Joshua completes, he earns $50 plus 40% of the fee paid by the customer. One installation took 2.5 hours to complete. Joshua's pay of d dollars per hour worked is based on the customer's fee of f dollars plus $50. This is represented by the equation below.

$$2.5d = 0.4f + 50$$

Which equation shows the amount Joshua earned per hour if the customer's fee was $40?

A. $d = \dfrac{16 + 20}{2.5}$

B. $d = \dfrac{16 + 50}{2.5}$

C. $d = 16 + \dfrac{50}{2.5}$

D. $d = \dfrac{16}{2.5} + 50$

164. **Force is calculated using the formula _F_ = _m•a_ where _F_ is force in kilogram-meters per square second, _m_ is the mass of an object in kilograms, and _a_ is the object's acceleration in meters per square second. If a force of 15 kilogram-meters per square second is applied to a 7.5-kg model train, what is the object's acceleration in meters per square second?**

   A. 0.50
   B. 2.0
   C. 7.5
   D. 11.0

165. **Which inequality expresses all the solutions to** $4 \leq 8 - x < 10$?

   A. $-10 < x \leq 4$
   B. $-2 < x \leq 4$
   C. $x < -2 \text{ or } x \geq 4$
   D. $x < -10 \text{ or } x \geq 4$

166. **What is the solution for _x_ in the equation below?**

   $$-9 + 5 + 4 = x + 23$$

   A. -23
   B. -5
   C. 5
   D. 23

167. **If _x_ is an integer, what is the minimum value of _x_ that satisfies the inequality below?**

   $$6x - 3(2x - 1) > 7 - 4(x + 2)$$

   A. 1
   B. 0
   C. -1
   D. -2

168. **Which of the following inequalities is equivalent to** $9x \geq 10 - 3(x + 5)$?

   A. $9x \geq 7x + 5$
   B. $9x \geq 7x + 35$
   C. $9x \geq -3x - 5$
   D. $9x \geq -3x + 15$

169. What is the solution of the equation $3(x - 5) = {}^-x + 7$?

A. $\dfrac{{}^-11}{2}$

B. $^-3$

C. 3

D. $\dfrac{11}{2}$

170. **What is the solution for _n_ in the inequality?**

$$-17 + 3n \le 7(n - 2)$$

A. $n \ge -\dfrac{15}{4}$

B. $n \le -\dfrac{15}{4}$

C. $n \ge -\dfrac{3}{4}$

D. $n \le -\dfrac{3}{4}$

171. **Which inequality is equivalent to** $3(7t + 4) - 8(t - 2) < 9t$?

A. $29t - 4 < 9t$

B. $29t + 2 < 9t$

C. $13t - 4 < 9t$

D. $13t + 28 < 9t$

172. **For which values of _x_ is the inequality** $-x < 5 - 2x$ **true?**

A. $x > -5$

B. $x > -\dfrac{5}{3}$

C. $x < \dfrac{5}{3}$

D. $x < 5$

173. **Which of the following inequalities is equivalent to** $-5(1 - 2x) > 4(3x)$?

A. $-5 - 10x > 12x$

B. $-5 + 10x > 12x$

C. $-5 - 10x < 12x$

D. $-5 + 10x < 12x$

174. Which of the following inequalities is equivalent to $\frac{6r-8}{2} \geq 3(2r+1)$?

   A. $3r-4 \geq 6r+1$
   B. $3r-4 \geq 6r+3$
   C. $3r-8 \geq 6r+1$
   D. $3r-8 \geq 6r+3$

175. Which equation is equivalent to $\frac{1}{3}(6x-9) - \frac{1}{2}(8x+10) = 44$?

   A. $-2x-8 = 44$
   B. $-2x-2 = 44$
   C. $-2x+1 = 44$
   D. $-2x+2 = 44$

176. A formula used to calculate heart rates is given by $H = (220 - A) \cdot I$, where H is a person's target heart rate, A is the person's age in years, and I is the percent of intensity. At what intensity is a 20 year-old exercising if the target heart rate is 100?

   A. 40%
   B. 50%
   C. 60%
   D. 100%

177. Which equation, when solved for x, is equivalent to $5xy - 4 = 6x + 3$?

   A. $x = \dfrac{5y-6}{7}$

   B. $x = \dfrac{7}{5y-6}$

   C. $x = \dfrac{^-y}{7}$

   D. $x = \dfrac{7}{^-y}$

178. Which equation is equivalent to $3(2y-2) - 2(y-3) + 6y = 5$?

   A. $4y = 5$
   B. $10y = 5$
   C. $10y - 5 = 5$
   D. $14y - 12 = 5$

179. **Which equation is equivalent to** $-4(x + 6) = 12x?$

    A. $-4x - 24 = 12x$

    B. $-4x - 6 = 12x$

    C. $-4x + 6 = 12x$

    D. $-4x + 24 = 12x$

180. **Which equation is equivalent to** $\dfrac{x}{4} + \dfrac{x}{5} = 1$?

    A. $9x = 1$

    B. $9x = 20$

    C. $40x = 1$

    D. $40x = 20$

181. What is the solution to the equation $5(x - 2) - (x + 3) = x - 8$?

    A. $x = {}^-5$

    B. $x = \dfrac{{}^-1}{3}$

    C. $x = \dfrac{5}{3}$

    D. $x = 3$

182. Which equation is equivalent to $x = \dfrac{1}{2}(p + q)$?

    A. $p = \dfrac{1}{2}x - q$

    B. $p = \dfrac{1}{2}x + q$

    C. $p = 2x - q$

    D. $p = 2x + q$

183. What is the value of x if $2 - Hx = Jx$?

    A. $x = 2 - (H + J)$

    B. $x = 2(H + J)$

    C. $x = \dfrac{H + J}{2}$

    D. $x = \dfrac{2}{H + J}$

184. What is the solution of the inequality 4 + 5x ≤ ⁻19?

A. $x \leq \dfrac{^-23}{5}$

B. $x \geq \dfrac{^-23}{5}$

C. $x \leq {}^-3$

D. $x \geq {}^-3$

185. **A rectangular field with a length of 100 yards must have a fence around its perimeter. There is enough money in the budget to buy no more than 300 yards of fencing. The inequality** $200 < 2w + 200 \leq 300$ **can be solved to determine _w_, the width in yards for the enclosed rectangular field. Which inequality best represents the solution?**

A. $0 < w \leq 50$

B. $0 < w \leq 100$

C. $w < 0 \text{ or } w \geq 50$

D. $w < 0 \text{ or } w \geq 100$

186. **What is the solution for _x_ in the following inequality?**

$$2x < \frac{1}{2}x - 3$$

A. $x < -2$

B. $x > -2$

C. $x < 2$

D. $x > 2$

187. Which equation is equivalent to $^-By + 16 = 64 - Ay$?

A. $y = \dfrac{80}{^-B + A}$

B. $y = \dfrac{48}{^-B + A}$

C. $y = \dfrac{80}{^-B - A}$

D. $y = \dfrac{48}{^-B - A}$

188. **Chris uses the equation** $C = 4h + 8$ **to find the total cost, _C_, in dollars, of renting a bike for _h_ hours. If Chris does not spend more than $52, what is the maximum number of hours she can rent a bike?**

A. 5

B. 11

C. 15

D. 21

189. Albert has saved $720, and every month he saves $80 more. John has saved $480, and every month he saves $120 more. Which of these gives the **correct** inequality and solution that shows for what number of months, n, John will have saved over $160 more than Albert?

A. $240 - 40n > 160$; $n > 2$ months

B. $240 - 40n > 160$; $n < 2$ months

C. $40n - 240 < 160$; $n < 10$ months

D. $40n - 240 > 160$; $n > 10$ months

190. **Which is the simplified form of** $10 - 5x < 20$?
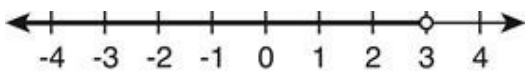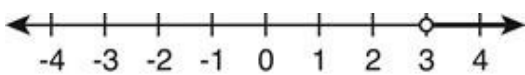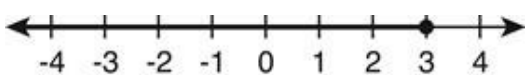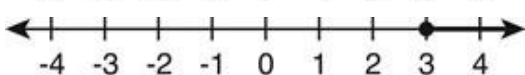
A. $x < -5$
B. $x < -2$
C. $x > -2$
D. $x > -6$

191. **Kari uses the equation** $C = 2h + 6$ **to find the total cost, C, in dollars, of renting a go-cart for h hours. If Kari does not spend more than $30, what is the maximum number of hours she can rent the go-cart?**

A. 9
B. 12
C. 18
D. 22

192. **Which inequality is the solution to** $7x - (x - 5) \geq 14$?

A. $x \geq \dfrac{9}{7}$
B. $x \geq \dfrac{3}{2}$
C. $x \geq \dfrac{19}{7}$
D. $x \geq \dfrac{19}{6}$

193. **Which line segment represents the solution to** $3x + 4 <>$

A.
B.
C.
D.

194. What is the solution to the inequality $\frac{^-5x + 3}{4} > {}^-8$?

   A. $x > 7$

   B. $x < 7$

   C. $x > 4$

   D. $x < 4$

195. **Which inequality is equivalent to** $2 - x > x - 6$ **?**

   A. $2x < 8$

   B. $2x > 8$

   C. $-2x < -4$

   D. $-2x > -4$

196. **Which equation is equivalent to** $2(4x + 1) = 6(2 - x)$**?**

   A. $9x = 10$

   B. $9x = 11$

   C. $14x = 10$

   D. $14x = 11$

197. **If** $2x + 11 = 3x + 4,$ **then** $x =$

   A. -7

   B. -3

   C. 3

   D. 7

198. **Solve** $-5g + 10 \leq 20$.

   A. $g = -2$

   B. $g \leq 2$

   C. $g \geq 2$

   D. $g \geq -2$

199. **The following formula can be used to convert a temperature in degrees Fahrenheit, _F_, to a temperature in degrees Celsius, _C_.**

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

What temperature, in degrees Fahrenheit, is equal to 25 degrees Celsius?

   A. 13°F

   B. 32°F

   C. 46°F

   D. 77°F

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

   A. $\dfrac{^-7}{36}$

   B. $\dfrac{1}{4}$

   C. 44

   D. 60

201. **When preparing for a 432-mile trip, Luis planned to drive 6 hours, stop for lunch, and then drive for 3 hours more. If he drives at the same average speed for the entire trip, the equation** $\dfrac{m}{6}=\dfrac{432-m}{3}$ **can be used to estimate m, the number of miles he planned to drive before stopping for lunch. How many miles did Luis plan to drive before lunch?**

   A. 48

   B. 72

   C. 144

   D. 288

202. **Which inequality is equivalent to** $3x-x\le 13-2x+1$**?**

   A. $3\le 12-2x$

   B. $3\le 14-2x$

   C. $2x\le 12-2x$

   D. $2x\le 14-2x$

203. What value of x satisfies the equation $5(x-3)-2(x+1)=4$?

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

   B. 3

   C. $\dfrac{17}{3}$

   D. 7

204. What is the value of x in the equation $7x - 3x + 4 = \frac{x}{4} - 12$?

A. $x = \frac{^-64}{15}$

B. $x = \frac{^-32}{15}$

C. $x = \frac{^-64}{5}$

D. $x = \frac{^-64}{3}$

205. **Solve** $-6(2y + 7) \le 14 - 4y$.

A. $y \le -7$

B. $y \ge -7$

C. $y \ge -\frac{7}{8}$

D. $y \le \frac{7}{2}$

206. **Which expression is equivalent to** $4(3x + 7) - 3(2x - 6) = 34?$

A. $6x + 1 = 34$

B. $6x + 10 = 34$

C. $6x + 34 = 34$

D. $6x + 46 = 34$

207. **Which inequality is equivalent to** $-4(2x + 7) < 16?$

A. $-8x - 28 > 16$

B. $-8x - 28 < 16$

C. $-8x + 7 > 16$

D. $-8x + 7 < 16$

208. What value of x satisfies $6x - 8 = 22 - (x - 5)$?

A. 4

B. 5

C. 6

D. 7

209. **Which equation is equivalent to** $6x - 4(3x) + 12 = 103 - x$ **?**

    A. $6x = 103 - x$

    B. $-x + 12 = 103 - x$

    C. $18x + 12 = 103 - x$

    D. $-6x + 12 = 103 - x$

210. **If** $9 + 2x - 5 = 10$, **then** $x =$

    A. 3

    B. 4

    C. 7

    D. 12

211. Shawn charges $15 per hour for mowing lawns. How many hours did he work last week if he spent $45 on gas and saved the remaining $285?

    A. 95

    B. 22

    C. 16

    D. 3

212. **Which equation is equivalent to** $6(2x - 4) = 5(x - 1)$ **?**

    A. $12x - 24 = 5x - 1$

    B. $12x - 4 = 5x - 1$

    C. $12x - 24 = 5x - 5$

    D. $12x - 4 = 5x - 5$

213. **In the inequality below, let** *x* **represent the number of cakes a bakery makes each day.**

$5x + 10 \leq 160$

Which of the following phrases most accurately describes the number of cakes the bakery makes each day?

    A. less than 30 cakes

    B. more than 30 cakes

    C. exactly 30 cakes

    D. at most 30 cakes

214. **Given the set of numbers** $\{-3.5, -3, -2.5, -2, 0\}$, **which set below contains all possible solutions to the inequality** $4x + 3.5 > -8.1$ **?**

    A. $\{-3.5\}$

    B. $\{-3.5, -3\}$

    C. $\{-2.5, -2\}$

    D. $\{-2.5, -2, 0\}$

215. **The suggested retail price per bottle of dish soap, *y*, is determined by the volume in liquid ounces, *x*, as shown below.**

$$y = 0.5x - 0.48(0.5x - 2)$$

If the suggested retail price of a bottle of dish soap is $4.08, what is the bottle's volume in ounces?

A. 8
B. 12
C. 23
D. 30

216. **What is the value of x in the equation below?**

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

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

217. **Solve for *x*.**

$$2(3 + x) = 5x + 54$$

A. 16
B. 12
C. -12
D. -16

218. **What is the value of *x* if 36 – 3(2*x* – 6) = 30?**

A. -8
B. -2
C. 0
D. 4

219. **If *x* is an integer, what is the minimum value of *x* that satisfies the inequality?**

$$-7(x - 2) + 1 < x$$

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

220. **Which of the following inequalities is equivalent to** $2(x - 8) + 9 \geq 3(4 - x) - 4$?

A. $x \geq 3$
B. $x \leq 3$
C. $x \geq \dfrac{7}{3}$
D. $x \leq \dfrac{7}{3}$

221. **What value of r makes** $\dfrac{2r+3}{5} = \dfrac{4r-3}{7}$ **true?**

    A. −2

    B. −1

    C. 2

    D. 6

222. **Which expresses all solutions for this inequality?**

$4m < 8 + 2m$ or $8 - 4m > 12$

    A. $m < -1$

    B. $m < 4$

    C. $-1 < m < 4$

    D. $m < -1$ or $m > 4$

223. **Which of these inequalities is equivalent to** $-5(y - 6) < -2(8y + 11) + 7$?

    A. $-5y - 6 < -16y + 18$

    B. $-5y - 6 > -16y + 18$

    C. $-5y + 30 < -16y - 15$

    D. $-5y + 30 > -16y - 15$

224. **Which of the following expresses ALL solutions for the inequality below?**

$3m < 14 + 2m$ or $3 - m > 12$

    A. $m < -9$

    B. $m < 14$

    C. $-9 < m < 14$

    D. $m < -9$ or $m > 14$

225. **Solve for x:** $7 + x = -14$.

    A. −21

    B. −2

    C. 7

    D. 21

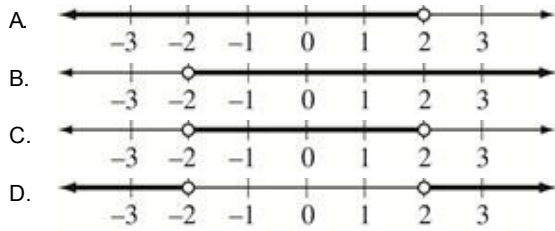226. **What expresses all the solutions for this inequality?**

$5d < 14 + 3d$ or $6 - 3d > 12$

    A. $d < -2$

    B. $d < 7$

    C. $-2 < d < 7$

    D. $d < -2$ or $d > 7$

227. **Which of the following graphs represents the solution set of the inequality** $-2 < x < 2$?

   A.

   B.

   C.

   D.

228. **Given the set of numbers** $\left\{-1, 0, \dfrac{1}{2}, 4, 10\right\}$, **what set contains all possible solutions to the inequality**

$3x - 4 < 6$?

   A. $\{4, 10\}$

   B. $\{4\}$

   C. $\left\{-1, 0, \dfrac{1}{2}\right\}$

   D. $\{-1, 0\}$

229. **Marcie parks her car in a parking garage where it costs $3.00 for the first hour and $1.50 for each additional hour. This is represented by the following equation where** t = **time and** p = **the cost of parking, in dollars**

$p = 3 + 1.50(t - 1)$

If Marcie paid $9.00 to park, how many hours was her car in the garage?

   A. 3

   B. 4

   C. 5

   D. 6

230. **For which values of** n **is the inequality** $n + 8 > -8 - n + 18$ **true?**

   A. $n > 1$

   B. $n < 1$

   C. $n > 9$

   D. $n < 9$

231. What is the solution to the equation 8 − 2(3x − 1) = x + 9?

A. $\dfrac{^-16}{7}$

B. $\dfrac{^-3}{7}$

C. $\dfrac{1}{7}$

D. $\dfrac{15}{7}$

232. Which equation is equivalent to $3x + \dfrac{x}{4} = -9$?

A. $4x = -9$

B. $4x = -36$

C. $13x = -9$

D. $13x = -36$

233. What value of b will make the equation $\dfrac{3b+2}{5} + \dfrac{2b-4}{4} = 2b + 3$ true?

A. -4

B. $\dfrac{3}{8}$

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

D. 4

234. In the inequality below, let x represent the number of cakes a bakery makes each day.

$5x + 15 \le 240$

Which phrase most accurately describes the number of cakes the bakery makes each day?

A. less than 45 cakes

B. at most 45 cakes

C. exactly 45 cakes

D. more than 45 cakes

235. What is the solution to the inequality $3m - 6 \le -8(2m - 4)$?

A. $m \le \dfrac{2}{19}$

B. $m \le \dfrac{26}{19}$

C. $m \le 2$

D. $m \ge 2$

236. **Which equation is equivalent to** $8x - 2(3x + 1) = 20$ **?**

    A. $2x - 2 = 20$
    B. $2x - 1 = 20$
    C. $2x + 1 = 20$
    D. $2x + 2 = 20$

237. **Which of the following equations is equivalent to** $2(3x - 1) = 3 - (-2 - x)$**?**

    A. $6x - 2 = 1 - x$
    B. $6x - 2 = 5 + x$
    C. $6x - 1 = 1 + x$
    D. $6x - 1 = 5 - x$

238. **If x is an integer, what is the largest value of x that satisfies the inequality below?**

$$7(x + 1) < 5x + 1 - 4x$$

    A. -2
    B. -1
    C. 0
    D. 1

239. **What is the solution for x in the inequality** $4 - 2x > 8$**?**

    A. $x < 6$
    B. $x > -6$
    C. $x < -2$
    D. $x > -2$

240. Which equation is equivalent to $\frac{2x}{3} + \frac{x}{7} = 4$?

    A. $17x = 4$
    B. $17x = 84$
    C. $42x = 84$
    D. $63x = 84$

241. **If** $8x + 5 > 1, \ 2x - 7 < 3$ **and x is an integer, which of the following is the set of all possible values of x?**

    A. $\{1, 2, 3, 4\}$
    B. $\{0, 1, 2, 3, 4\}$
    C. $\{-1, 0, 1, 2, 3, 4\}$
    D. $\{-1, 0, 1, 2, 3, 4, 5\}$

242. **Which inequality is equivalent to** $1 - x < x - 1$?

A. $2x > 2$

B. $2x > -2$

C. $2x < 2$

D. $2x < -2$

243. **Hope uses the equation** $C = 5h + 10$ **to find the total cost, C, in dollars, of renting a bike for h hours. If Hope does not spend more than $60, what is the maximum number of hours she can rent the bike?**

A. 2

B. 10

C. 14

D. 45

244. **For which values of x is the inequality** $5x - 11 \leq 3x - 11$ **true?**

A. $x \leq 0$

B. $x \geq 0$

C. $x \leq -11$

D. $x \geq -11$

245. **Which equation is equivalent to** $5(2x - 1) + 8 = 10(5x - 2)$ **?**

A. $10x + 3 = 50x - 20$

B. $10x + 7 = 50x - 2$

C. $10x + 35 = 50x - 20$

D. $10x + 39 = 50x - 20$

246. **Janis uses the equation** $C = 4h + 8$ **to find the total cost, C, in dollars, of renting a bike for h hours. If Janis does not spend more than $60, what is the maximum number of hours she can rent the bike?**

A. 48

B. 17

C. 13

D. 7

247. What is the value of x for the inequality $12x + 9x - 3 \leq {}^{-}3(2x + 14)$?

A. $x \leq \dfrac{{}^-5}{3}$

B. $x \geq \dfrac{{}^-5}{3}$

C. $x \leq \dfrac{{}^-13}{9}$

D. $x \geq \dfrac{{}^-13}{9}$

248. **If *x* is an integer, what is the largest value of *x* that satisfies the inequality below?**

$$7x - 12 - 3x < 9 - (7 + 3x)$$

A. 1

B. 2

C. 13

D. 14

249. **What is the solution to the inequality** $-31 > 6x + 11$?

A. $x > -\dfrac{10}{3}$

B. $x < -\dfrac{10}{3}$

C. $x > -7$

D. $x < -7$

250. **Which of the subsets of the set** $\{0, 1, 2, 3\}$ **are included in the solution set of this compound inequality?**

$$2x + 4 > 2 \text{ and } 3x - 1 < 0$$

A. $\{0\}$

B. $\{0, 1\}$

C. $\{1, 2\}$

D. $\{2, 3\}$