

TEST NAME: **6th**
TEST ID: **3913**
GRADE: **SIXTH GRADE**
SUBJECT: **Mathematics**
TEST CATEGORY: **Common Classroom**

Student: _____

Class: _____

Date: _____

1. Simplify the following expression: $3(x - 1/2) + 1/2(2x + 19)$

Show all work.

2. The width of a rectangle is 6 inches shorter than 3 times its length. The width of the rectangle is at most 45 millimeters. Which inequality can be used to find x , the length of the rectangle?

A. $6 - 3x \leq 45$

B. $6 - 3x \geq 45$

C. $3x - 6 \leq 45$

D. $3x - 6 \geq 45$

3. Which is equivalent to the expression below?

$$3p + 4 + p + 12 + 3q$$

A. $4p + 3q + 16$

B. $4p + 10q$

C. $6p + q + 16$

D. $20p + 3q$

4. Vin pays Verizon a monthly fee of \$55 for his cell phone. He also pays \$0.30 for each text. If his cell phone bill for October is \$90.10, how many text messages did he send?

Part A: Write an equation to solve the problem.

Equation: _____

Part B: Show the steps you took to solve the problem.

Part C: Explain how you found how many text messages Vin sent in the month of October.

5. Evaluate the expression when $x = 3$, and $y = 4$.

$$24x - 9 + 5y - 2$$

- A. 63
- B. 81
- C. 90
- D. 100

6. A waitress earned \$7 per hour at her job plus an additional \$50 in tips on Friday. She earned more than \$99 total. Which inequality best represents the situation, where, h , represents the number of hours she worked on Friday?
- A. $7 + 50h > 99$
- B. $7 + 50h \leq 99$
- C. $7h + 50 > 99$
- D. $7h + 50 \geq 99$
7. What is $(-4.8y + 20.1) - (12.7y + 9.3)$?
- A. $-17.5y + 10.8$
- B. $-15.3y - 22$
- C. $7.9y + 29.4$
- D. $17.5y + 10.8$
8. Richie's bicycle tires have a diameter of 42 centimeters. Which is the closest to the circumference of one of the tires?
- A. 65.94 cm
- B. 87.14 cm
- C. 131.88 cm
- D. 441 cm
9. Jonas bought 3 books. Each book was the same price. After using a \$10-off coupon, the total charge was \$20. Which equation can be used to find b , the cost of each book?
- A. $3b + 10 = 20$
- B. $3b - 10 = 20$
- C. $10b + 3 = 20$
- D. $10b - 3 = 20$

10. Simplify the expression:

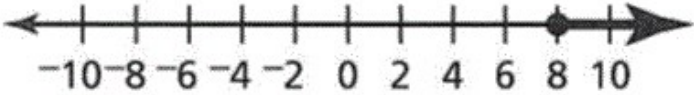
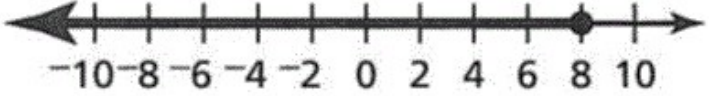
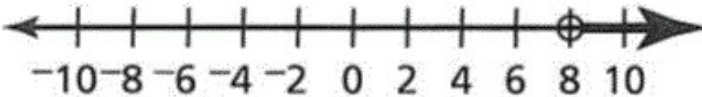
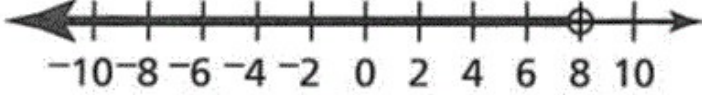
$$ab + 2ab - b + 9$$

- A. $3a + 9$
- B. $3ab - b + 9$
- C. $2ab + 9$
- D. $3ab - (b + 9)$

11. The Hamied family stayed at a hotel for n nights. The cost was \$80 per night plus a one-time fee of \$20 because they brought their dog. Which expression represents the total cost of their hotel stay?

- A. $80n + 20n$
- B. $80n + 20$
- C. $80 + 20n$
- D. $80 + 20 + n$

12. The sum of -4 and 2 times a number x is at least 12. Which number line shows the solution set for this inequality?

- A. 
- B. 
- C. 
- D. 

13. Choose the verbal expression that matches the given algebraic expression:

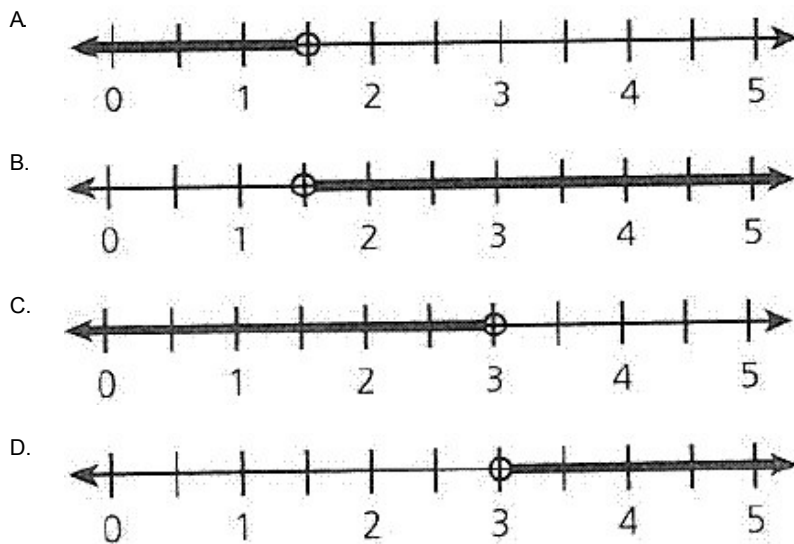
$$6n \div 4$$

- A. The product of four times a number and six
- B. The product of six times a number and four
- C. The quotient of six times a number and four
- D. The quotient of four and six times a number

14. Ken has \$18 to spend on two models of the solar system and supplies to paint them. The two models cost the same amount. His paint supplies cost \$4.62. Which expression indicates how much he can spend on each model? Use x to represent the model of the solar system.

- A. $x \leq \$6.69$
- B. $x \geq \$6.69$
- C. $x \leq \$13.38$
- D. $x \geq \$13.38$

15. Which number line shows the solution to the inequality $4x + 3 > 9$?



16. Simplify: $5 + (7x + 3) + (-7x)$

- A. $-8x$
- B. $8x$
- C. $14x + 8$
- D. 8

17. A bench is being centered on a wall. The wall is 2.7 m long and the bench is 1.8 m long. Which equation can be used to determine how much of the wall, x , should be on each side of the bench?

- A. $2.7 - 1.8x = 2$
- B. $1.8x + 2 = 2.7$
- C. $2x - 1.8 = 2.7$
- D. $2x + 1.8 = 2.7$

18. Simplify: $3a + b + a - 5$

- A. $3a + b - 5$
- B. $3a^2 - 5b$
- C. $4a - 4b$
- D. $4a + b - 5$

19. Jeremy is 4 inches shorter than Kevin. Kevin is n inches tall.

Part A: Write an expression to represent Jeremy's height.

Answer: _____

Part B: Dimitri is 3 inches taller than Jeremy. Write an expression to represent Dimitri's height. Use the expression to explain how Dimitri's height compares to Kevin's height.

20. Factor completely:

$$7x - 14$$

- A. $7(x - 2)$
- B. $7(x - 14)$
- C. $7x(x - 2)$
- D. $7x(x - 14)$

21. Write an expression for the sequence of operations.

Part A: Subtract the product of 3 and x by 1, then double what you have.

Expression: _____

Part B: Add 3 to x , double what you have, then subtract 1 from the result.

Expression: _____

22. Aiden is shopping for school supplies. He has \$35 to spend on a calculator and notebooks. He will buy one calculator for \$18. Let n represent the cost of one notebook. Which expression represents the number of notebooks Aiden can buy with the \$35?

- A. $(35 - 18) \div n$
- B. $(18 - 35) \cdot n$
- C. $(18 - 35) \div n$
- D. $(35 + 18) \div n$

23. If an employee is making \$25 an hour and gets a 10% raise, what is his new salary?

- A. \$35
- B. \$27.50
- C. \$25.10
- D. \$30

24. Consider the expression

$$\frac{1}{3}\left(x + \frac{4}{5}\right) + \frac{3}{5}\left(\frac{2}{3}x + \frac{1}{6}\right)$$

Part A

Simplify the expression as much as possible.

Show all work.

Part B

What properties of numbers did you use to simplify the expression?

25. In an online media store, downloaded songs costs \$3 each and books cost \$9 each. Taji paid \$7 in sales tax when he purchased 15 songs and 3 books. Write and simplify an expression to show how much Taji spent on everything, including sales tax.

A. $3 + 15 + 9 + 3 + 7$; \$37

B. $3 \times 15 + 9 \times 3 + 7$; \$223

C. $3 \times 3 + 9 \times 15 + 7$; \$151

D. $3 \times 15 + 9 \times 3 + 7$; \$79

26. The variable d represents the number of dollars in a bank account:

$$\frac{1}{2}d - 10$$

Which phrase matches the expression?

A. Ten dollars less than half the number of dollars in the account

B. One half the difference of the dollars in the account and ten dollars

C. One half the number of dollars in the account increased by ten dollars

D. The product of half the dollars in the account and negative ten dollars

27. An auto mechanic charges an hourly rate of \$74 plus the cost of parts to repair cars.

Part A : Write an expression to represent the amount the auto mechanic charges for h hours of repair work.

Expression: _____

Part B: The cost of parts for one car was \$67. The total amount the auto mechanic charged to repair this car was \$326. Write an equation to find the number of hours charged to repair this car. Explain how you determined your equation.

Equation: _____

28.

Angelo and Jimmy went shopping. Angelo had a dollars in his wallet.

He spent $\frac{1}{3}$ of that money on new jeans. Jimmy had j dollars in his

wallet. He spent $\frac{1}{2}$ of that money on a new jacket. Jimmy had more money left than Angelo. Which expression shows how much more money, in dollars, Jimmy had left?

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

B. $\frac{2}{3}a - \frac{1}{2}j$

C. $\frac{1}{2}j - \frac{2}{3}a$

D. $\frac{1}{2}j - \frac{1}{3}a$

29. Solve $6(s-8) \leq -18$

A. $s \leq -5$

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

C. $s \leq 5$

D. $s \leq -11$

30. Caroline has 3 less than twice the number of goldfish than her sister. Which expression shows the total number of goldfish, g , that they both own?

A. $3 - g$

B. $2g - 3$

C. $3 - 2g$

D. $3g - 3$

31. Which expression is equivalent to the one shown below?

$6y - 3 + y$

A. $3y$

B. $3 + y$

C. $6 - 3y$

D. $7y - 3$

32. Juan needs to take a taxi to get to the movies. The taxi charges \$3.50 for the first mile, and then \$2.75 for each mile after that. If the total charge is \$18.63, then how far was Juan's taxi ride to the movie?

A. 6.5 miles

B. 5.3 miles

C. 6.8 miles

D. 5.5 miles

33. Which inequality can be used to find how many \$2.50 fruit packs can be purchased for \$15.00? Use f to represent the number of fruit packs.

- A. $2.50f \geq 15.00$
- B. $2.50f > 15.00$
- C. $2.50f \leq 15.00$
- D. $2.50f < 15.00$

34. The variable s stands for the number of units in the side of a square. Which verbal expression matches the following algebraic expression:

$$4s + 4$$

- A. the perimeter of the square increased by 4 units
- B. the perimeter of the square decreased by 4 units
- C. four times the perimeter of the square increased by 4 units
- D. the product of 4 and the perimeter of the square

35. Simplify:

$$\frac{1}{8} \left[64x - \frac{2}{3} \right]$$

- A. $8x - \frac{2}{11}$
- B. $8x + \frac{1}{12}$
- C. $8x - \frac{13}{24}$
- D. $8x - \frac{1}{12}$

36. What value of y makes this equation true?

$$8(y - 9) = 24$$

- A. 3
- B. 6
- C. 9
- D. 12

37. What is the value of the expression $6x + y^3$ when $x = 7$ and $y = 4$?

- A. 54
- B. 66
- C. 106
- D. 97,336

38. Which expression represents the phrase "two-fifths times the difference of y and 7"?

- A. $\frac{2}{5}y - 7$
- B. $\frac{2}{5}(y - 7)$
- C. $\frac{2}{5}(7 - y)$
- D. $\frac{2}{5}\left(\frac{y}{7}\right)$

39. Kara used the formula $P = 2(l + w)$ to find the perimeter of a photograph. She tells Jim that the length is 6 centimeters and the perimeter is 22 centimeters. How can Jim find the width of the photo?

40. Which expression represents the phrase “the quotient of two more than three times a number n and 5”?

A. $\frac{(2 + 3n)}{5}$

B. $5(2 + 3n)$

C. $\frac{(5 + 3n)}{2}$

D. $\frac{(2 + 15)}{n}$

41. Which expression is equivalent to $-3(-6b + 5)$?

A. $-18b - 15$

B. $-6b - 15$

C. $6b + 15$

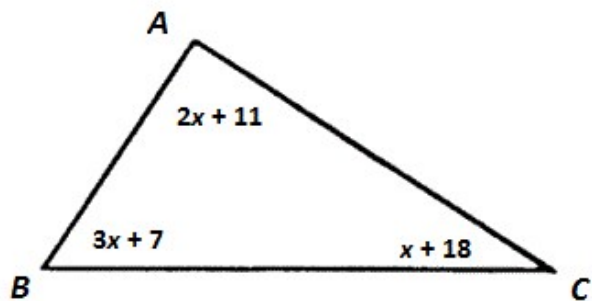
D. $18b - 15$

42. What value of m makes the equation below true?

$$9m + 36 = 0$$

- A. -6
- B. -4
- C. 4
- D. 6

43. The sum of the measures of a triangle is 180° .



Part A: Write and solve an equation for x .

Equation: _____

$x =$ _____

Part B: What is the measure of each angle? Justify your reasoning.

Angle A = _____

Angle B = _____

Angle C = _____

44. Which value of a makes the equation true?

$$3(a + 9) = 33$$

- A. 2
- B. 3
- C. 6
- D. 11

45. Kevin sold 5 times as many raffles tickets as Alice. If Kevin sold 45 raffle tickets in all, which equation can be used to find a , the number of tickets Alice sold?

- A. $5 + a = 45$
- B. $45 + a = 5$
- C. $5a = 45$
- D. $45a = 5$

46. Aiden is 4 inches shorter than twice Jackson's height. Aiden is 68 inches tall. Which equation can be used to find h , Jackson's height in inches?

- A. $2h - 4 = 68$
- B. $4 - 2h = 68$
- C. $2(h - 4) = 68$
- D. $2(4 - h) = 68$

47. Which is the solution set of this inequality?

$$2n - 7 < 25$$

- A. $n > 16$
- B. $n < 16$
- C. $n > 9$
- D. $n < 9$

48. Kate is 7 years older than Ginger. If Kate is x years old, which expression represents Ginger's age?

- A. $7x$
- B. $7 + x$
- C. $x - 7$
- D. $7 - x$

49. What are the like terms in the expression below?

$$8k + 6k^2 - 2k - 2$$

- A. $8k$ and $-2k$
- B. $-2k$ and -2
- C. $8k$, $6k^2$, and $-2k$
- D. $8k$, $6k^2$, $-2k$, and -2

50. Which is the solution set of the following inequality?

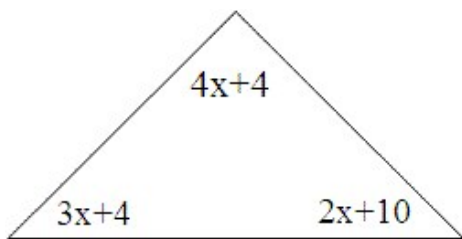
$$3n - 8 < 19$$

- A. $n > 27$
- B. $n < 27$
- C. $n > 9$
- D. $n < 9$

51. Will bought 24 juice boxes for \$7.30. Which equation can be solved to find the amount each juice box costs?

- A. $24b = \$7.30$
- B. $24 \div b = \$7.30$
- C. $7.3b = \$24$
- D. $7.3 \div b = \$24$

52. The sum of the measures of the angles of the triangle is 180° . Write and solve an equation for x .



- A. $x=12$
- B. $x=14$
- C. $x=20$
- D. $x=18$

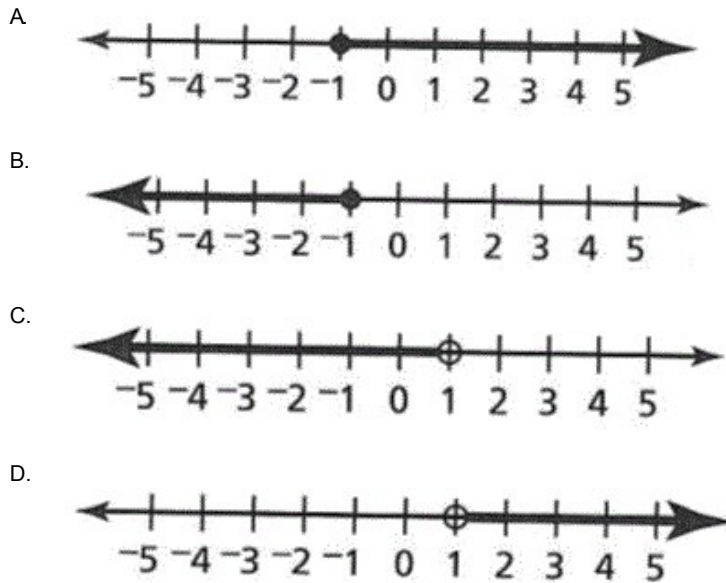
53. A cell phone plan charges \$39.90 a month, plus \$0.05 per text message. Which inequality can be solved to find how many text messages, x , can be sent while still keeping the monthly bill under \$50?

- A. $39.9 + 0.05x > 50$
- B. $x(39.9 + 0.05) < 50$
- C. $39.9 + 5x < 50$
- D. $39.9 + 0.05x < 50$

54. How would you write a phrase that represents the expression $24x + 19$?

- A. Nineteen less than twenty-four times a number
- B. Nineteen more that twenty-four times a number
- C. Twenty-four more than nineteen times a number
- D. Twenty-four less than nineteen times a number

55. Which graph shows the solution to the inequality $-2x + 4 \geq 6$?



56. What is the value of this expression when $a = -3$ and $b = 5$?

$$a + b^2$$

- A. -28
- B. -13
- C. 22
- D. 28

57. Simplify: $n - 12 + 4n + 2 - 3n$

- A. $-8n$
- B. $10n + 14$
- C. $2n - 10$
- D. $2n + 10$

58. Solve $2(a - 5) - 5 = 3$.

- A. $a = 9$
- B. $a = 12$
- C. $a = -9$
- D. $a = -12$

59. Simplify:

$$\frac{3}{4} \left[16y - \left(-\frac{1}{2} \right) \right]$$

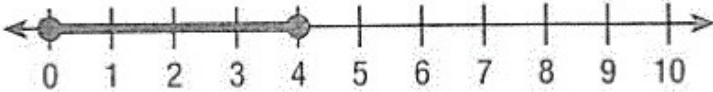
- A. $12y + \frac{3}{8}$
- B. $12y + 1\frac{1}{2}$
- C. $12y - \frac{3}{8}$
- D. $12y - 1\frac{1}{2}$

60. A mover notes the weights of a table and 4 chairs and records $t + 4c \geq 100$ on his invoice. What is he communicating?

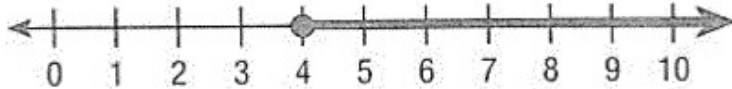
- A. The tables and the 4 chairs each weigh more than 100 pounds.
- B. The table and 4 chairs weigh at most 100 pounds.
- C. The table and 4 chairs weigh around 100 pounds, give or take a little.
- D. The table and 4 chairs weigh at least 100 pounds.

61. Lisa can spend up to \$50 at the hardware store. She is buying a paintbrush and paint roller for a total of \$18. The paint she wants to buy costs \$8 per gallon. Which of the following graphs represents the possible number of gallons of paint Lisa can buy?

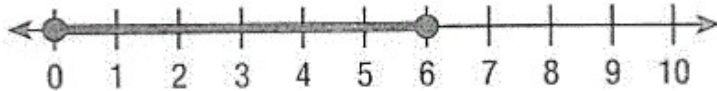
A.



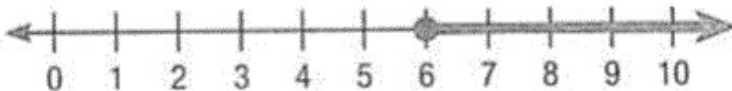
B.



C.



D.



62. Which expression represents the phrase, "the quotient of two times a number decreased by six and three"?

A. $\frac{(2x - 6)}{3}$

B. $3(2x - 6)$

C. $2x - \frac{6}{3}$

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

63. Last weekend, seventh graders washed cars for \$5 each. They made at least \$200. Which inequality represents the number of cars, x , the seventh graders washed?

A. $x \leq 40$

B. $x \geq 40$

C. $x \leq 50$

D. $x \geq 50$

64. Which phrase matches the expression $2(6 + 3n)$?

A. Two times a number plus three times a number.

B. The sum of 12 and three times a number.

C. Two times the sum of six and three times a number.

D. Three times a number increased by six.

65. Simplify this expression.

$$12p - 7p - 3q - q$$

A. $5p - 2q$

B. $5p - 4q$

C. $5p^2 - 2q^2$

D. $5p^2 - 4q^2$

66. Karla recently received a 4% raise in her annual salary. If her new salary is \$46,800, what was her salary before the raise?

Show all work.

67. Harry has to buy notebooks. They cost \$4 each. He can spend at most \$28.

Part A: Write an inequality to show how many notebooks, n , Harry can buy.

Inequality: _____

Part B: Solve the inequality and graph the solution on the number line.



Part C: Can Harry buy 8 notebooks? Explain why or why not.

68. What is the solution to this inequality?

$$x + 6 \leq 2$$

- A. $x \leq -4$
- B. $x \geq -4$
- C. $x \leq 4$
- D. $x \geq 4$

69. One school bus can seat 42 passengers. How many school buses will be needed to transport a total of 180 passengers on a trip to the state legislature?

- A. 138
- B. 10
- C. 5
- D. 4

70. Vin pays Verizon a monthly fee of \$55 for his cell phone. He also pays \$0.30 for each text.

Part A: If his cell phone bill for October is \$90.10, how many text messages did he send? **Show all work.**

Answer: _____

Part B: Explain how you found your answer.

71. Which expression represents "5 less than the product of 7 and x " ?

A. $7(x - 5)$

B. $7x - 5$

C. $7 + x - 5$

D. $5 - 7x$

72. The perimeter of a rectangle equals the sum of twice its length and twice its width. A rectangle has a length of $4n + 3$ units and a width of $3n$ units. Write an expression for the perimeter of this rectangle in simplest form.

A. $7n + 3$

B. $7n + 6$

C. $14n + 6$

D. $14n + 12$

73. In a board game, Lauren gets x points for landing on a red space, $2x$ points for landing on a blue space, and $5x$ points for going all the way around the board. She lands on 21 red spaces, 19 blue spaces, and goes around the board twice, for a total of $21x + 19 \cdot 2x + 2 \cdot 5x$ points. Which expression also represents Lauren's total points?

A. $(21 + 19) 2x + 10x$

B. $42x$

C. $69x$

D. $(21 + 19 + 2)(x + 2x + 5x)$

74. The math club needs to raise more than \$552.35 for a trip to state competition. The club account has a balance of \$67.25. Which inequality shows how much money each of the 7 club members needs to raise?

A. $m < \$69.30$

B. $m > \$69.30$

C. $m < \$78.91$

D. $m > \$78.91$

75. Simplify this expression.

$$g - 3(f - g) - 2f$$

A. $-f$

B. $-5f$

C. $-2g - 5f$

D. $4g - 5f$

76. A moving company charges \$250 to rent a truck and \$0.40 for each mile driven. Mr. Lee paid a total of \$314. Which equation can be used to find m , the number of miles he drove the moving truck?

A. $0.40m + 250 = 314$

B. $250m + 0.40 = 314$

C. $m + 0.40(250) = 314$

D. $m(0.40 + 250) = 314$

77. Carrie and Freddy collect stamps. Carrie notes that she has twelve less than five times the number of stamps Freddy has. Carrie has 23 stamps. Let f be the number of stamps that Freddy has.

PART A : Write an equation that represents Carrie's collection.

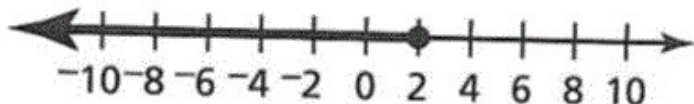
Equation: _____

PART B: How many stamps does Freddy have?

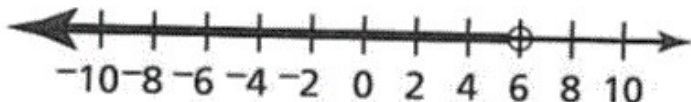
Answer: _____

78. Which number line shows the inequality $3(d - 2) \leq 12$?

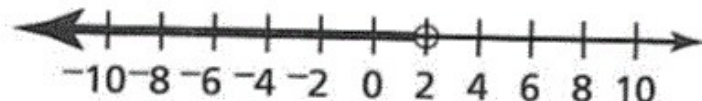
A.



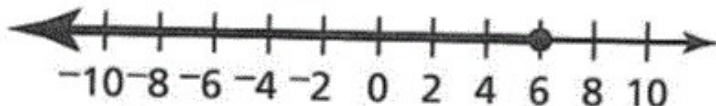
B.



C.



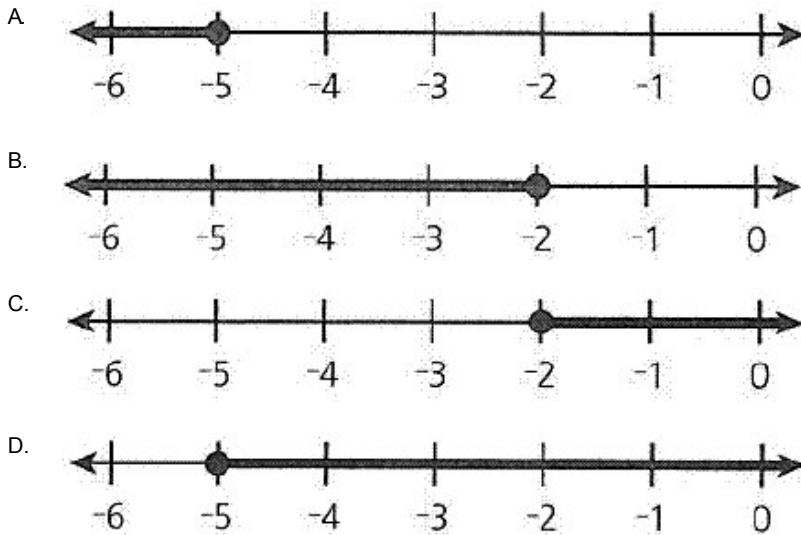
D.



79. Jonathan wants to save up enough money so that he can buy a new sports equipment set that includes a football, baseball, soccer ball, and basketball. This complete boxed set costs \$50. Jonathan has \$15 he saved from his birthday. In order to make more money, he plans to wash neighbors' windows. He plans to charge \$3 for each window he washes, and any extra money he makes beyond \$50 he can use to buy the additional accessories that go with the sports box set.

Write and solve an inequality that represents the number of windows Jonathan can wash in order to save at least the minimum amount he needs to buy the boxed set. Graph the solutions on the number line. What is a realistic number of windows for Jonathan to wash? How would that be reflected in the graph?

80. Which number line shows the solution to the inequality $2x + 7 \geq 3$?



81. A video game is on sale for 30% off the regular price of \$50. What is the sale price of the video game?

- A. \$20
- B. \$30
- C. \$33
- D. \$35

82. Simplify the expression:

$$222 - 3(5^2 - 4^2) + 12$$

- A. 153
- B. 118
- C. 207
- D. 5,471

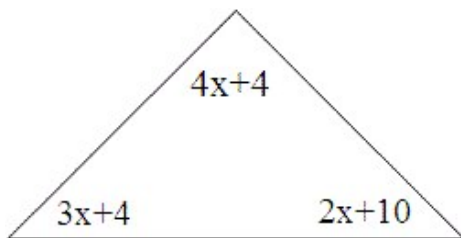
83. A 20-ounce box is filled with cans. Each can weighs 16 ounces. The total weight of the box with cans is 212 ounces. Which equation can be used to find c , the number of cans in the box?
- A. $16c + 20 = 212$
 - B. $20c + 16 = 212$
 - C. $16(c + 16) = 212$
 - D. $20(c + 16) = 212$
84. Tran has c coins. Each coin is worth 50 cents. Which expression shows the value of these coins, in cents?
- A. $50c$
 - B. $c + 50$
 - C. $C \div 50$
 - D. $50 - c$
85. Montel sold 13 popcorn buckets and 13 fruit baskets for a fundraiser. The fruit baskets cost \$20.75 each. If Montel raised a total of \$468.00, how much did each popcorn bucket cost?
- A. \$36.00
 - B. \$33.75
 - C. \$22.55
 - D. \$15.25

86. Simplify:

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

- A $-8x^2 + 2x$
- B $4x^3 - 12x^2 + \frac{1}{2}x$
- C $4x^3 - 12x^2 + 2x$
- D $4x^3 + x + \frac{1}{2}$

87. The sum of the measures of the angles of the triangle is 180° . Write and solve an equation for x .



- A $x=12$
- B $x=14$
- C $x=20$
- D $x=18$

88. Solve $5h + 15 - 3h = 32$

A $h = 16$

B. $h = 23\frac{1}{2}$

C. $h = 8\frac{1}{2}$

D. $h = 2\frac{1}{8}$

89. Which expression below is equivalent to $\frac{4}{3}x + 4\frac{2}{3}$?

A $\frac{4}{3}(x + 2)$

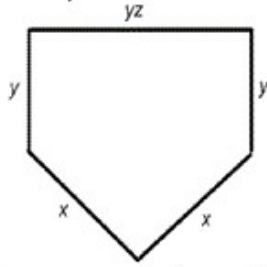
B. $\frac{1}{3}(4x + 6)$

C. $\frac{2}{3}(2x + 4)$

D. $\frac{2}{3}(2x + 7)$

90.

The lengths of the sides of home plate in a baseball field are represented by the expressions in the accompanying figure.



Which expression represents the perimeter of the figure?

- A. $5xyz$
 - B. $x^2 + y^3z$
 - C. $2x + 3yz$
 - D. $2x + 2y + yz$
91. Kristy bought some rolls of wrapping paper and 2 bags of bows for less than \$10. Each roll of wrapping paper and each bag of bows cost \$1.50. Which inequality can be used to find w , the number of rolls of wrapping paper Kristy bought?
- A. $1.50w + 2 < 10$
 - B. $2(w + 1.50) < 10$
 - C. $1.50(w + 2) < 10$
 - D. $2(w + 1.50) < 10$
92. Simplify $5v(3 + w) - (v + 2w)$
- A. $14v - w$
 - B. $15v + 3ww$
 - C. $14v + 5ww - 2w$
 - D. $15v + 4ww + 2w$

93. The I.S. 75 PTA has a budget of no more than \$700 to spend on advertising for its upcoming fundraiser. They plan to place an ad in the Staten Island Advance and create fliers to hand out. The newspaper ad costs \$300. The cost for each flier is \$1.50.

Part A: Write an inequality to represent the possible number of fliers, f , the PTA can create within their budget.

Inequality: _____

Part B: At most, how many fliers can the PTA create? Justify your reasoning.

Show all work.

94. When $\frac{5}{8}x + 1\frac{1}{3}$ is subtracted from $1\frac{1}{4}x - 5\frac{1}{6}$, the result is:

A. $\frac{5}{8}x - 3\frac{5}{6}$

B. $\frac{5}{8}x - 6\frac{1}{2}$

C. $-\frac{5}{8}x + 3\frac{5}{6}$

D. $-\frac{5}{8}x + 6\frac{1}{2}$

95. A video game is on sale for 30% off the regular price of \$50. What is the sale price of the video game?
- A. \$20
 - B. \$30
 - C. \$33
 - D. \$35
96. A triangle has sides with lengths of $2x - 7$, $5x - 3$, and $2x - 2$. What is the perimeter of the triangle?
- A. $9x - 12$
 - B. $5x - 12$
 - C. $-x - 6$
 - D. $-3x$
97. Brad bought a skateboard for \$2 less than half its original price. If he paid \$21.50, which skateboard did he buy?

Skateboard	Price (\$)
Go Green	45
Speedster	47
Up and Down	43
With the Flow	41

- A. Go Green
- B. Speedster
- C. Up and Down
- D. With the Flow

98. Jill and Kelly work as consultants and get paid per project. Jill is paid a project fee of \$25 plus \$10 per hour. Kelly is paid a project fee of \$18 plus \$14 per hour.

Part A: Write an expression to represent how much a company will pay to hire both consultants for a project.

Expression: _____

Part B: How much do Jill and Kelly make individually if they work 10 hours? Justify your reasoning.

99. The equation below shows the cost, in dollars, of a T-shirt, selling at \$12.00, and 3 pair of socks. What is the cost of one pair of socks, s ?

$$12 + 3s = 42$$

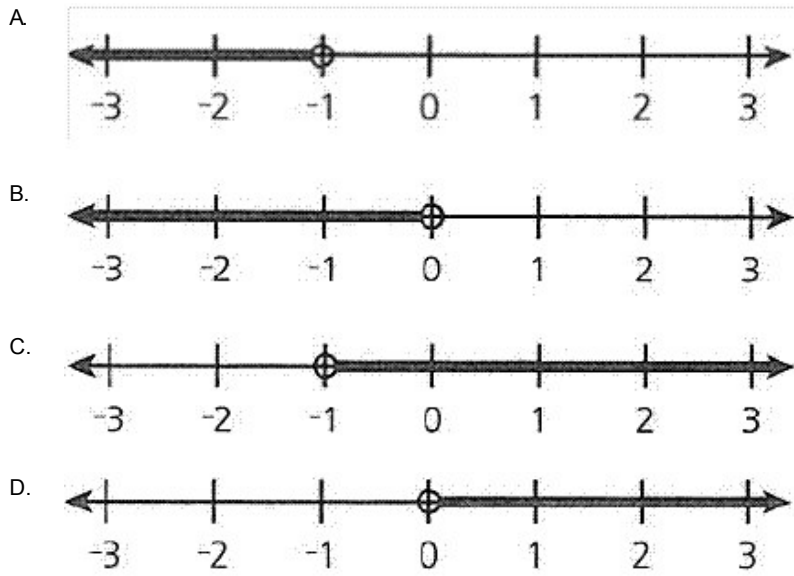
- A. 10
- B. 12
- C. 16
- D. 18

100. Expand the following expression:

$$6(2k - 3)$$

- A. $8k - 3$
- B. $9k$
- C. $12k - 3$
- D. $12k - 18$

101. Which number line shows the solution to the inequality $8x < -8$?



102. Josh bought, b , boxes of fruit snacks and each box contains 8 pouches. He gave 4 pouches to friends. Which expression shows the number of pouches of fruit snacks Josh has left?

- A. $4b - 8$
- B. $8b - 4$
- C. $4 - 8b$
- D. $8 - 4b$

103. Mrs. Hughes' class has 22 students. Her principal tells her that her class will increase to 30 students. Which equation can be used to find the percent increase, x ?
- A. $22 + x = 30$
 - B. $22 = 30x$
 - C. $22 + 22x = 30$
 - D. $30 - 22x = x$
104. What is the result of adding $(-2.9a + 6.8)$ and $(4.4a - 7.3)$?
- A. $7.3a + 14.1$
 - B. $2.5a - 1.5$
 - C. $1.5a + 0.5$
 - D. $1.5a - 0.5$
105. Which inequality represents the solution to $\frac{2}{3}x + 4 \leq -8$?
- A. $x \leq -6$
 - B. $x \geq -6$
 - C. $x \leq -18$
 - D. $x \geq -18$
106. What is the simplified form of the expression $6 - 2w - w$?
- A. $3w$
 - B. $4w - 1$
 - C. $6 - w$
 - D. $6 - 3w$

107. Juan takes a taxi to get to the movies. The taxi charges \$3.50 for the first mile, and then \$2.75 for each additional mile. If the total charge is \$18.63, then how far was Juan's taxi ride to the movies? Round your answer to the nearest tenth.
- A. 6.5 miles
 - B. 5.3 miles
 - C. 6.8 miles
 - D. 5.5 miles
108. Cleo wants to join a gym. There is an initiation fee of \$24.99 and each month of membership costs \$12.50. If Cleo pays \$174.99, how long will his membership last?
- A. 5 months
 - B. 7 months
 - C. 12 months
 - D. 14 months
109. A rental car costs \$25 for one day, plus an additional \$1.00 per mile. Mike rents the car and then drives 50 miles.

Part A: Write an equation to represent the cost for renting the car, c , based on the number of miles, m .

Equation: _____

Part B: What is the cost of renting a car for one day and driving it 50 miles?

Show all work.

Cost: _____

110. Which expression represents twice a number less 5?

- A. $2n - 5$
- B. $5 - 2n$
- C. $n + 2 - 5$
- D. $5 - n + 2$

111. Which expression is already in its simplified form?

- A. $3t + (s + t)$
- B. $6h + 2(h + 3k)$
- C. $5m + 7mn + 4n$
- D. $8 + y^3 - 5z^2 + 2y^3$

112. Eduardo can spend up to \$8 for lunch. He wants to buy a sandwich and a cup of soup for \$5.03. Eduardo also wants to buy some fruit for dessert. Each piece of fruit costs \$0.99. Which inequality shows the number of pieces of fruit that Eduardo can buy?

- A. $p \leq 8$
- B. $p \leq 7$
- C. $p \leq 5$
- D. $p \leq 3$

113. A bench is being centered on a wall. The wall is 2.7 m long and the bench is 1.8 m wide. Which equation can be used to determine how much of the wall, x , should be on each side of the bench?

- A. $2.7 - 1.8x = 2$
- B. $1.8x - 2 = 2.7$
- C. $2x - 1.8 = 2.7$
- D. $2.7 - 2x = 1.8$

114. Evaluate the expression when $n = 5$ and $r = 6$.

$$18n + 32 - 9r - 12$$

- A. 56
- B. 83
- C. 184
- D. 208

115. Jasmine took a cab home from her office. The cab charged a flat fee of \$4 plus \$2 per mile. Jasmine paid \$32 for the trip. How far does she live from her office?

- A. 5.33 miles
- B. 7.50 miles
- C. 14 miles
- D. 26 miles

116. The price of mailing a small package is \$0.32 for the first ounce and \$0.21 for each additional ounce. Sandra paid \$1.16 to mail her package. How much did it weigh?

- A. 4 ounces
- B. 5 ounces
- C. 6 ounces
- D. 7 ounces

117. Which expression represents the quotient of 6 and a number k ?

- A. $6k$
- B. $6 - k$
- C. $k \div 6$
- D. $6 \div k$

118. Mark is selling tickets for a concert. Adult tickets cost \$16.60, and children's tickets cost \$12.20. He gets to keep 25% of the money he collects from ticket sales.

Part A: Write an expression to represent how much Mark gets to keep.

Expression: _____

Part B: How much does Mark get to keep if he sells 20 adult tickets and 40 children's tickets? Justify your reasoning.

119. When John bought his new computer, he purchased an online computer help service. The help services has a yearly fee of \$25.50 and a \$10.50 charge for each help session a person uses.

Part A: If John can only spend \$170 for the computer help this year, what is the maximum number of help sessions he can use this year?

Answer: _____

Part B: Justify your reasoning.

120. A circular mirror has a radius of 6 inches. What is the circumference of the mirror?
- A. 3π inches
 - B. 6π inches
 - C. 12π inches
 - D. 36π inches
121. A tree is 6 feet tall now. It is expected to grow 2 feet a year. In how many years is the tree expected to be 30 feet tall?
- A. 6
 - B. 12
 - C. 16
 - D. 18
122. Simplify: $15d + 27d - 9d$
- A. $33d^3$
 - B. $33d$
 - C. $51d^2$
 - D. $51d$
123. Mr. Borkowski ordered 3 boxes of pens for the supply room. There are 12 pens in each box. If there are now a total of 96 pens in the supply room, including the ones Mr. Borkowski added, how many boxes of pens were already in there before his order arrived?
- A. 5
 - B. 6
 - C. 8
 - D. 11

124. Vin pays Verizon a monthly fee of \$55 for his cell phone. He also pays \$0.30 for each text.

If his cell phone bill for October is \$90.10, how many text messages did he send?

Part A: Write an equation and solve the problem.

Equation: _____

Part B: Explain how you found your answer.

125. Larry has \$389.00. A DVD player costs \$97.00, and he can purchase used movies for \$11.55 each. What is the greatest number of movies Larry can buy if he also buys a DVD player?

- A. at most 26
- B. at most 34
- C. at most 25
- D. at most 43

126. Simplify $6r + 3(2r + 1)$.

- A. $11r + 1$
- B. $11r + 3$
- C. $12r + 1$
- D. $12r + 3$

127. Write an expression for the sequence of operations.

Part A: The quotient of 36 and four times n , subtracted from 24.

Expression: _____

Part B: Multiply 5 and p , take half of the result, then add 20.

Expression: _____

128. Choose the verbal expression that matches the given algebraic expression:

$$\frac{2}{3}x - 9$$

- A. Nine less than two-thirds of a number
- B. Nine more than two-thirds of a number
- C. The product of two-thirds of a number and negative nine
- D. Two-thirds times the difference of a number and nine

129. Choose the verbal expression that matches the given algebraic expression:

$$\frac{n+15}{5}$$

- A. Five less than the product of a number and fifteen
- B. The quotient of fifteen and five, increased by a number
- C. The product of a number and fifteen, divided by five
- D. The sum of a number and fifteen, divided by five

130. It's the morning of a school carnival and 16 cakes are on the table so far. Cakes are being sold by the whole and by the slice. Families arrive and buy a total of $12\frac{3}{4}$ cakes by noon. 14 more cakes are dropped off for sale. Another $7\frac{1}{8}$ cakes are sold by the end of the day. How many cakes are left over?

131. Which inequality represents the solution to $-0.25x + 2.5 \geq 1.5$?

- A $x \geq -4$
- B $x \leq -0.25$
- C $x \geq 0.25$
- D $x \leq 4$

132. The students in Mr. Sanchez's class are converting distances measured in miles to kilometers. To estimate the number of kilometers, Abby takes the number of miles, doubles it, then subtracts 20% of the result. Renato first divides the number of miles by 5, then multiplies the result by 8.

Part A: Write an algebraic expression for each method.

Abby's Expression: _____

Renato's Expression: _____

Part B: Use your answer to part (a) to decide if the two methods give the same answer. Justify your reasoning.

133. What verbal expression is the same as the algebraic expression below?

$$8 - 3x$$

- A. Three times a number minus eight
- B. Three minus eight times a number
- C. Eight times a number minus three
- D. Eight minus three times a number

134. A television is on sale for 20% off its original price, p . Write a multiplication expression to describe the sale price of the television.

- A. $0.20p$
- B. $0.20p - p$
- C. $0.20p + p$
- D. $p - 0.20p$

135. Triangle CED has side lengths $5x - 8$, $3x - 4$ and $13x + 3$. Which expression represents the perimeter of triangle CED ?

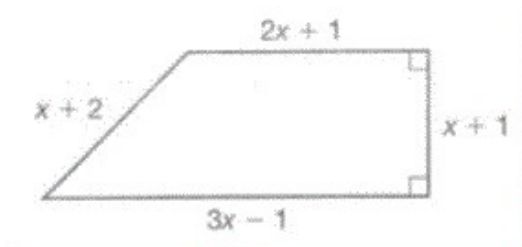
- A. $12x$
- B. $21x - 9$
- C. $21x - 1$
- D. $21x + 9$

136. Which inequality can be used to find how many \$1.25 snack packs can be purchased for \$10.00? Use s to represent the number of snack packs.

- A. $1.25s \geq 10.00$
- B. $1.25s \leq 10.00$
- C. $\frac{s}{1.25} \geq 10.00$
- D. $\frac{s}{1.25} \leq 10.00$

137. Eliza sold flowers at the flea market on Saturday. She had 40 bunches, which cost her \$2 per bunch. In the morning, she sold $\frac{1}{4}$ of the bunches for \$5 each. In the afternoon, she reduced the price to \$4 per bunch and sold the rest of the flowers. How much money did she earn after subtracting the amount she originally paid for the flowers? Justify your answer.

138. Which expression represents the perimeter, in units, of this trapezoid?



- A. $7x + 3$
B. $7x - 1$
C. $2x + 1$
D. $2x - 1$
139. Verify and explain the mistake that was made in simplifying the expression. Then correctly simplify the expression.

$$\begin{aligned} & 3(x - 6) + (4x + 12) - 6x \\ &= 3x - 9 + 4x + 12 - 6x \\ &= (3x + 4x - 6x) + (-9 + 12) \\ &= x + 3 \end{aligned}$$

140. Rocky joined the gym. His membership costs \$25 per month, plus \$9 for each personal training session. If his gym budget is \$65 per month, how many personal training sessions can he attend?

Show your work.

141. Gloria set aside \$100 to buy school lunches for the year. Each school lunch cost \$2. The inequality $100 - 2x < 20$ can be used to find the number of school lunches Gloria can buy before she has less than \$20 left. What is the solution to this inequality?

- A. $x > 40$
- B. $x < 40$
- C. $x > 60$
- D. $x < 60$

142.

What is the value of z if $\frac{7}{6}z + \frac{1}{3} = -\frac{5}{6}$?

- A. 1
- B. $\frac{12}{21}$
- C. 0
- D. -1

143. The number of pledges that Melissa collected for this year's charity walk is 8 less than half the number of pledges she collected last year. She collected p pledges last year. Which expression represents the number of pledges she collected this year?

- A. $2p - 8$
- B. $p - \frac{8p}{2}$
- C. $\frac{p}{2} - 8$
- D. $8 - \frac{p}{2}$