Part III:

(Expressions & Equations, and

Number Sense)

Saturday Tutoring
Mathematics Program

Name:_____

6th Grade

1. At a grocery store, one pound of grapes costs $2.25. In the following expressions, *p* represents any number of pounds of grapes.

Which expression represents the cost, in dollars, of *p* pounds of grapes?

A *p*-2 2.25

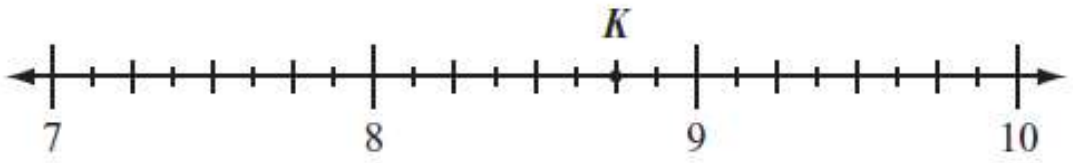
B 2.25 + *p*

C *p* ÷ 225

D 2.25 × *p*

EE

2. The location of point *K* is shown on the number line below.



What mixed number is represented by the location of point *K*?

***K* =**

NS

3. Last week Colby baby-sat for 12 hours and earned $156. He earned the same amount of money for each hour he baby-sat.

How much money, in dollars, did Colby earn per hour for baby-sitting?

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Show your work.

Answer: $_____

4. Simplify: $2\frac{1}{2} \div \frac{1}{4}$

Show your work.

NS

5. What is the value of the expression below when t=6?

$$5t - 2$$

A 20

B 28

C 30

D 32

EE

6. What is the value of the expression $6m + 3^3$ when m equals 7?

Show your work.

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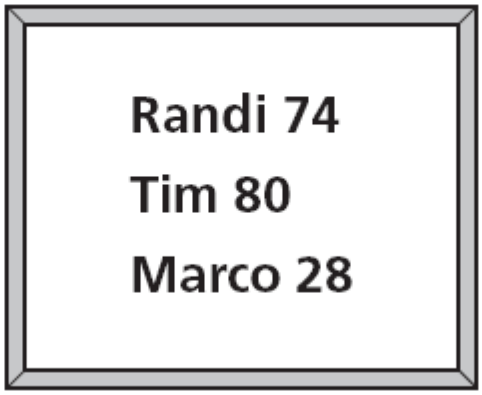
Answer _____

7. Mr. Ward asked his students to evaluate the expression $4^3 + 2y$ when $y = 8$. Three of Mr. Ward's students wrote their answers on the board.



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Which student evaluated the expression correctly?

Show your work.

Answer _____

8. Erin shops at two stores for a new sweater. The sweater at the first store costs \$15 less than three times the cost, c, of the sweater at the second store. The sweater at the first store costs \$90. The equation below can be used to determine the cost of the sweater at the second store.

$$3c - 15 = 90$$

Solve the equation to find the cost of the sweater at the second store.

Show your work.

Answer \$ _____

EE

9. Juan attends a carnival. The admission fee is $8. Tickets for rides cost $4 each. Juan needs one ticket for each ride. Write an equation Juan can use to determine the number of ride tickets, *r*, he can buy if he has $32 before he pays the admission fee.

Equation _____

Using the equation above, find the number of tickets Juan can buy.

Show your work.

Answer _____ ride tickets

10. The science teacher at Angela's school is planning a field trip for all her classes. The number of accompanying adults must be proportional to the number of students. For example, if 30 students go on the field trip, there must be 5 adults.

Use the proportion below to determine the number of adults, *a*, that need to accompany 84 students on the field trip.

$$\frac{30}{5} = \frac{84}{a}$$

Show your work.

EE

Answer _____ adults

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

$$2n + 1 = 21$$

A 10

B 11

C 18

D 20

EE

12. Tamera's class was divided in half to play a game of softball. There were 12 students on each team. **Which algebraic equation could be used to calculate the number of students, s, in Tamera's class?**

A $\frac{12}{s} = 2$

B $12 + s = 2$

C $\frac{s}{2} = 12$

D $s + 2 = 12$

EE

13. What is the value of $2x^3 + 4x^2 - 3x^2 - 6x$ when $x = 3$?

Show your work.

EE

14. What is the solution to the equation below?

$$4w = \frac{2}{3}$$

EE

A $w = \frac{2}{12}$

B $w = \frac{2}{7}$

C $w = \frac{8}{3}$

D $w = 3\frac{1}{3}$

15. Which expression represents the phrase below?

8 less than the product of 6 and a number, x

A $8 - 6x$

B $6x - 8$

C $(6 + x) - 8$

D $8 - (6 + x)$

EE

16. Simplify: $6(2x + 3y) + 3(x - y)$

A $12x + 15y$

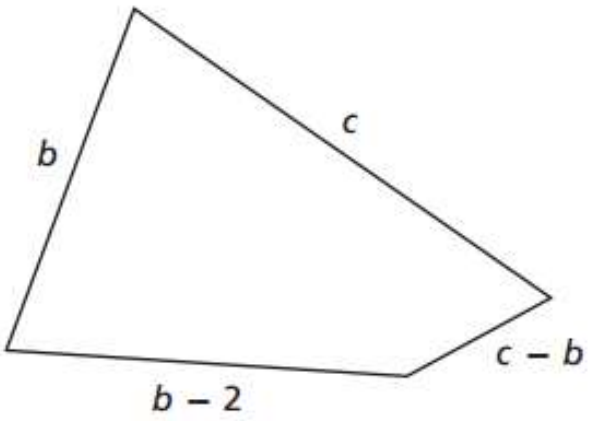
B $15x + 15y$

C $12x - 13y$

D $9x$

EE

17. In the diagram of a quadrilateral below, the variables represent the lengths of the sides, in inches.



[not drawn to scale]

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Write an expression using the variables b and c that could be used to find the perimeter of the quadrilateral.

Answer _____

If $b = 11$ and $c = 16$, what is the perimeter of the quadrilateral?

Show your work.

18. Evaluate: $7^2 \times (9 - 4) + 10 \div 2 - 1$

A 225

B 249

C 441

D 735

EE

19. Evaluate:
$y + y + c - 10 + x$
when $x = 7$, $y = 10$, and $c = 8$

A 11

B 21

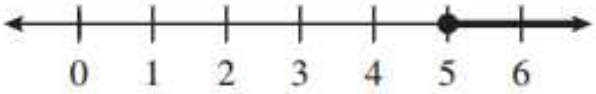
C 25

D 105

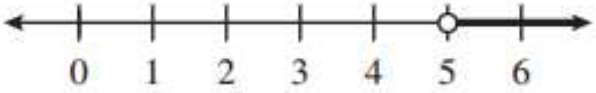
EE

20. Which number line correctly represents the solution to the inequality $3x < 15$?

A.



B.



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C.

D.