

## Math 8 Cumulative Review Take Home Test #2

1. Marcy determined that her father's age is four less than three times her age. If  $x$  represents Marcy's age, which expression represents her father's age?

1.  $3x - 4$
2.  $3(x - 4)$
3.  $4x - 3$
4.  $4 - 3x$

2. Pythagorean Theorem states:

- a.  $a^2 \times b^2 = c$
- b.  $b^2 + h^2 = a^2$
- c.  $a^2 + b^2 = h^2$
- d.  $a^2 + b^2 = c^2$

3. Mr. Stanton asked his students to write an algebraic expression on a piece of paper. He chose four students to go to the board and write their expression.

Robert wrote:  $4(2x + 5) \geq 17$

Meredith wrote:  $3y - 7 + 11z$

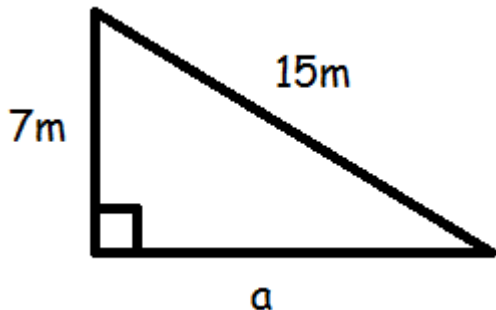
Steven wrote:  $9w + 2 = 20$

Cynthia wrote:  $8 + 10 - 4 = 14$

Which student wrote an algebraic expression?

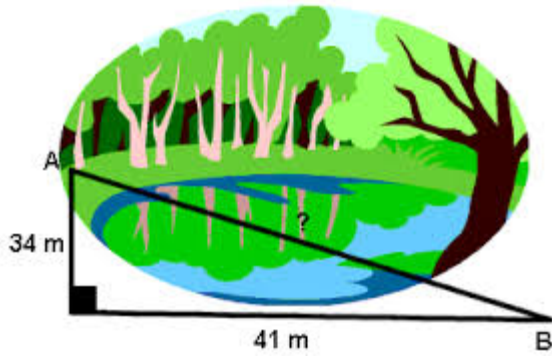
1. Robert
2. Meredith
3. Steven
4. Cynthia

4. Find the missing side length rounded to the nearest whole number.



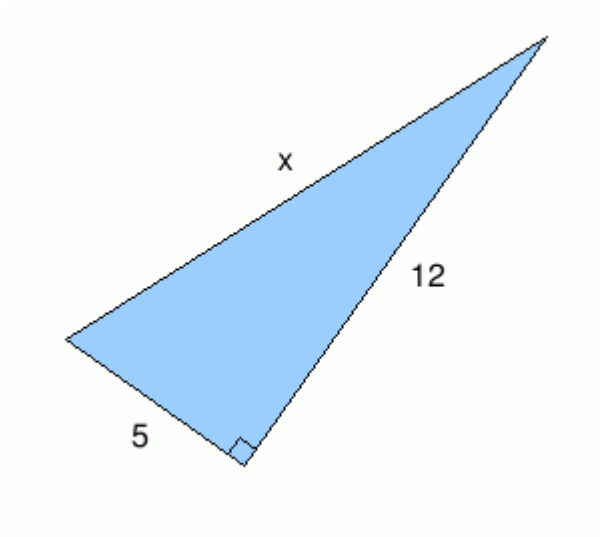
- a. 13 m
- b. 14 m
- c. 8 m
- d. 17 m

5. Approximately how far is it from point A to Point B?



- a. 53.4 m
- b. 24.1 m
- c. 525 m
- d. 53.3 m

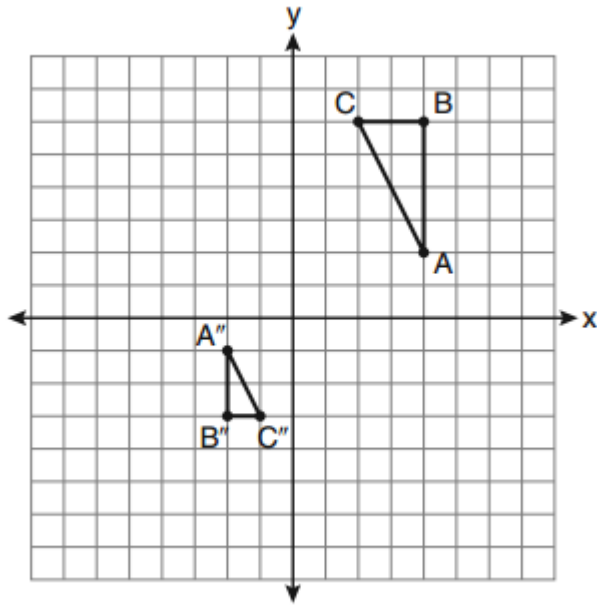
6.



Find the value of  $x$ .

- a. 13
- b. 11
- c. 169
- d. 10.9

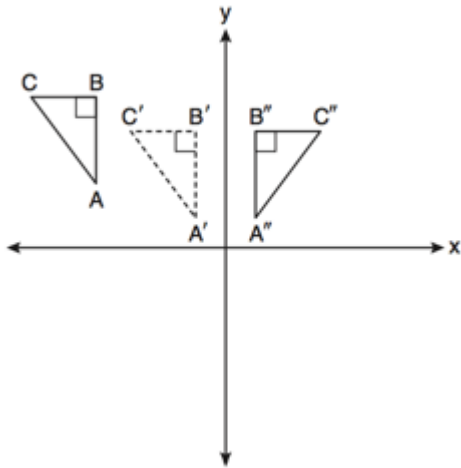
7. After a composition of transformations, the coordinates A(4,2), B(4,6), and C(2,6) become A''(-2,-1), B''(-2,-3), and C''(-1,-3), as shown on the set of axes below.



Which composition of transformations was used?

1.  $R_{180^\circ} \circ D_2$
2.  $R_{90^\circ} \circ D_2$
3.  $D_{\frac{1}{2}} \circ R_{180^\circ}$
4.  $D_{\frac{1}{2}} \circ R_{90^\circ}$

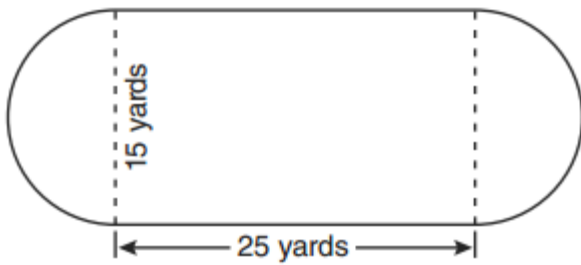
8. In the diagram below,  $\triangle A'B'C'$  is a transformation of  $\triangle ABC$ , and  $\triangle A''B''C''$  is a transformation of  $\triangle A'B'C'$ .



The composite transformation of  $\triangle ABC$  to  $\triangle A''B''C''$  is an example of a

1. reflection followed by a rotation
  2. reflection followed by a translation
  3. translation followed by a rotation
  4. translation followed by a reflection
9. What is the image of the point  $(2, -3)$  after the transformation  $r_{y\text{-axis}}$ ?
1.  $(2, 3)$
  2.  $(-2, -3)$
  3.  $(-2, 3)$
  4.  $(-3, 2)$
10. Which expression is equivalent to  $-3x(x - 4) - 2x(x + 3)$ ?
1.  $-x^2 - 1$
  2.  $-x^2 + 18x$
  3.  $-5x^2 - 6x$
  4.  $-5x^2 + 6x$

11. A playground in a local community consists of a rectangle and two semicircles, as shown in the diagram below.



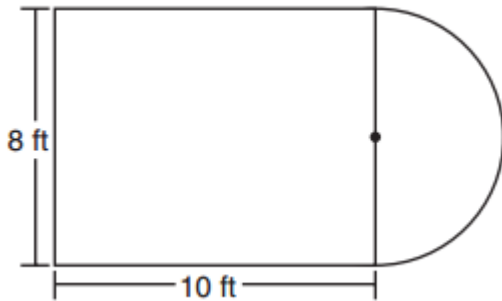
Which expression represents the amount of fencing, in yards, that would be needed to completely enclose the playground?

1.  $15\pi + 50$
  2.  $15\pi + 80$
  3.  $30\pi + 50$
  4.  $30\pi + 80$
12. What is the value of the expression  $|-5x + 12|$  when  $x = 5$ ?
1. -37
  2. -13
  3. 13
  4. 37
13. Which expression represents  $(3x^2y^4)(4xy^2)$  in simplest form?
1.  $12x^2y^8$
  2.  $12x^2y^6$
  3.  $12x^3y^8$
  4.  $12x^3y^6$
14. Which expression represents  $\frac{27x^{18}y^5}{9x^6y}$  in simplest form?
1.  $3x^{12}y^4$
  2.  $3x^3y^5$
  3.  $18x^{12}y^4$
  4.  $18x^3y^5$

15. Which expression is equivalent to  $(3x^2)^3$ ?

1.  $9x^5$
2.  $9x^6$
3.  $27x^5$
4.  $27x^6$

16. Luis is going to paint a basketball court on his driveway, as shown in the diagram below. This basketball court consists of a rectangle and a semicircle.



Which expression represents the area of this basketball court, in square feet?

1. 80
2.  $80 + 8\pi$
3.  $80 + 16\pi$
4.  $80 + 64\pi$

17. Which expression is equivalent to  $\frac{2x^{-2}y^{-2}}{4y^{-5}}$ ?

1.  $\frac{y^3}{2x^2}$
2.  $\frac{2y^3}{x^2}$
3.  $\frac{2x^2}{y^3}$
4.  $\frac{x^2}{2y^3}$

18. Which expression represents the number of hours in  $w$  weeks and  $d$  days?

1.  $7w + 12d$
2.  $84w + 24d$
3.  $168w + 24d$
4.  $168w + 60d$

19. If the expression  $(2y^a)^4$  is equivalent to  $16y^8$ , what is the value of  $a$ ?

1. 12
2. 2
3. 32
4. 4

20. What is the value of the expression  $(a^3 + b^0)^2$  when  $a = -2$  and  $b = 4$ ?

1. 64
2. 49
3. -49
4. -64

21. Which expression is equivalent to  $(3x^2)^{-1}$ ?

1.  $\frac{1}{3x^2}$
2.  $-3x^2$
3.  $\frac{1}{9x^2}$
4.  $-9x^2$

22. Which expression is equivalent to  $3^3 \cdot 3^4$ ?

1.  $9^{12}$
2.  $9^7$
3.  $3^{12}$
4.  $3^7$

23. Which expression is equivalent to  $16a + 24b$ ?

- a.  $4(4a + 20b)$
- b.  $8(2a + 3b)$
- c.  $4a(4 + 6b)$
- d.  $8ab(2 + 3)$

24. What is the value of the expression below when  $c = 5$  and  $d = 4$ ?

$$6c^2 - 5d + 8$$

- a. 48
- b. 79
- c. 138
- d. 888

25. Which expression represents  $\frac{-14a^2c^8}{7a^3c^2}$  in simplest form?

- 1.  $-2ac^4$
- 2.  $-2ac^6$
- 3.  $\frac{-2c^4}{a}$
- 4.  $\frac{-2c^6}{a}$

26. What is the value of the expression  $-3x^2y + 4x$  when  $x = -4$  and  $y = 2$ ?

- 1. -112
- 2. -80
- 3. 80
- 4. 272

27. Which expression is equivalent to  $(7x - 5) - (3x - 2)$ ?

- a.  $10x - 7$
- b.  $10x - 3$
- c.  $4x - 7$
- d.  $4x - 3$

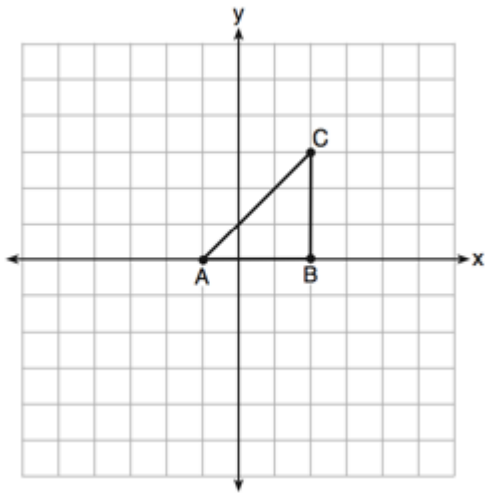
28. A soda container holds  $5\frac{1}{2}$  gallons of soda. How many ounces of soda does this container hold?

1 quart = 32 ounces  
1 gallon = 4 quarts

- 1. 44
- 2. 176
- 3. 640
- 4. 704



29. Triangle ABC is graphed on the set of axes below.



Which transformation produces an image that is similar to, but not congruent to,  $\triangle ABC$ ?

1.  $T_{2,3}$
2.  $D_2$
3.  $r_{y=x}$
4.  $R_{90}$

30. Triangle ABC is similar to triangle DEF. The lengths of the sides of  $\triangle ABC$  are 5, 8, and 11. What is the length of the shortest side of  $\triangle DEF$  if its perimeter is 60?

1. 10
2. 12.5
3. 20
4. 27.5

31. A 40-foot flagpole casts a 25-foot shadow. Find the shadow cast by a nearby building 200 feet tall.

- a. 150 ft
- b. 180 ft
- c. 5 ft
- d. 125 ft

32. A tree 24 feet tall casts a shadow 12 feet long. Brad is 6 feet tall. How long is Brad's shadow? (draw a diagram and solve)

- a. 12 ft
- b. 9 ft
- c. 6 ft
- d. 3 ft

33. Which equation is an example of the use of the associative property of addition?

1.  $x + 7 = 7 + x$
2.  $3(x + y) = 3x + 3y$
3.  $(x + y) + 3 = x + (y + 3)$
4.  $3 + (x + y) = (x + y) + 3$

34. Which expression represents the sum of  $(2x - 5y)$  and  $(x + y)$ ?

- a.  $3x - 4y$
- b.  $3x - 6y$
- c.  $x - 4y$
- d.  $x - 6y$

35. The expression below was simplified using two properties of operations.

$$5(11z + 29 + 6z)$$

$$\text{Step 1 } 5(11z + 6z + 29)$$

$$\text{Step 2 } 5(17z + 29)$$

$$\text{Step 3 } 85z + 145$$

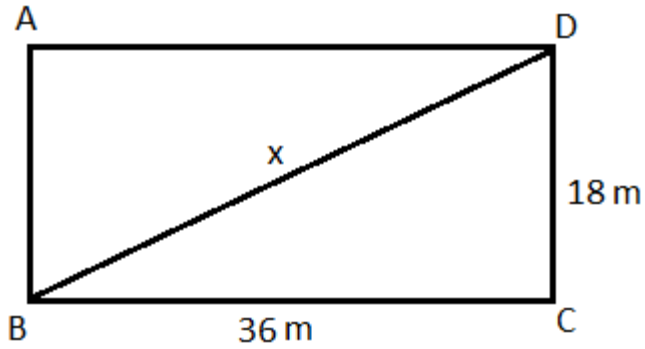
Which properties were applied in Steps 1 and 3, respectively?

- a. commutative property, then distributive property
- b. commutative property, then identity property
- c. associative property, then distributive property
- d. associative property, then commutative property

36. Which pair of expressions is equivalent?

- a.  $4(6x)$  and  $10x$
- b.  $4(6x)$  and  $24x$
- c.  $4x + 6x$  and  $10x^2$
- d.  $4x + 6x$  and  $24x$

37. Find the approximate length of  $x$ .



- 40.2 m
- 40.3 m
- 31.2 m
- 31.1 m

38. When using a calculator to complete the assessment, use the  $\pi$  key and the full display of the calculator for computations.

- a. Is a triangle with side lengths of 7 cm, 24 cm, and 25 cm a right triangle? Explain.

- b. Is a triangle with side lengths of 4 mm, 11 mm, and 15 mm a right triangle? Explain