

## Benchmark Test Modules 9–13

1. Which expression shows the prime factorization of 96?

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2. The power has a value of 1,024. Select True or False.

- A  $2^{10}$                        True     False  
 B  $4^5$                           True     False  
 C  $8^3$                           True     False  
 D  $32^2$                        True     False

3. Which step should be performed first when evaluating the expression below?

$$47 - 3 - 23 \times 2 + 7$$

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4. Mandy has 50 yards of fabric to make costumes for a play. She makes 12 skirts that take 3 yards each, and 9 hats that each take 1 yard. Which expression represents the number of yards of fabric that are left?

- A  $50 - 12^3 - 9$   
 B  $50 - 3(12 + 9)$   
 C  $3 \times 12 + 9$   
 D  $50 - 3 \times 12 - 9$

5. Which phrase has the same meaning as  $\frac{-7}{m}$ ? Select Yes or No.

- A negative 7 times a number  $m$   
 Yes     No  
 B negative 7 divided by a number  $m$   
 Yes     No  
 C a number  $m$  divided into negative 7  
 Yes     No  
 D the quotient of negative 7 and a number  $m$   
 Yes     No

6. Which property justifies the fact that  $8(d - 5)$  is equivalent to  $8d - 40$ ?

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7. What equation represents the relationship shown in the table?

<b>x</b>	24	6	3	1
<b>y</b>	1	4	8	24

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8. Write an equation to represent the situation described below.

Mike and his friends hiked 23 miles on Saturday. They hiked 7 miles fewer than that on Sunday. Their goal is to hike a total of 50 miles during their trip. How many miles did they hike on Sunday?

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9. What is the solution to the equation below?

$$12 = n + 5$$

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10. What is the solution to the equation below?

$$18 = \frac{y}{9}$$

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11. Lana is 12 years old. Her sister is  $y$  years old. Lana is twice as old as her sister. How old is Lana's sister?

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12. Which number is a solution of the inequality below? Select Yes or No.

$$x < 15$$

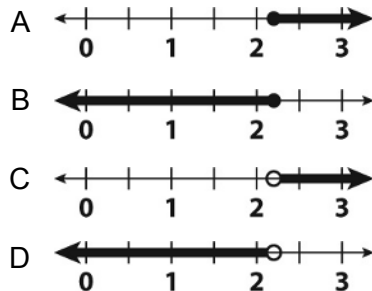
- A -6                       Yes     No  
 B -2                       Yes     No  
 C 11                       Yes     No  
 D 17                       Yes     No

13. Which number is a solution of the inequality below? Select Yes or No.

$$x \leq -3$$

- A -4.75                       Yes     No  
 B -2.25                       Yes     No  
 C 1.25                       Yes     No  
 D -3.75                       Yes     No

14. Which number line represents the solution to the inequality  $2.2 > x$ ?



15. The lowest temperature in January was  $7^{\circ}\text{F}$ . Write an inequality to represent all the temperatures  $x$  in January.
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16. A group of students is going on a field trip. Each bus can take up to 45 students. Write an inequality to represent the possible numbers  $x$  of students on the bus.
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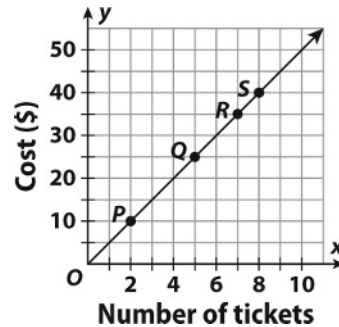
17. Use the ordered pairs shown in the table below.

<b>x</b>	2	4	6	8
<b>y</b>	3	6	9	12

Which equation represents the data in the table?

- A  $x = 1.5y$                       C  $y = 1.5x$   
 B  $x = \frac{1}{3}y$                       D  $y = \frac{2}{3}x$

Use the graph for 18–20.



The graph shows the cost of buying raffle tickets.

18. What are the coordinates of point  $R$ ?
- \_\_\_\_\_

19. What equation gives the cost  $y$  in terms of the number of tickets  $x$ ?
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20. Ralph buys 35 raffle tickets. How much does he spend?
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21. What equation represents the relationship shown in the table?

<b>x</b>	2	4	6	8
<b>y</b>	14	28	42	56

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22. What is the solution to the equation below?

$$23 = w + 8$$

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23. Karen scored 8 fewer goals than Siobhan. Siobhan scored 17 goals. Which equation could you use to find the number of goals Karen made?

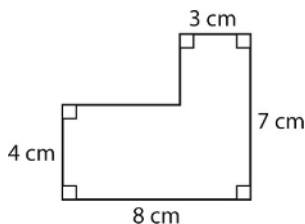
- A  $g + 17 = 8$
- B  $g + 8 = 17$
- C  $17 - g = 8$
- D  $8 - g = 17$

24. What is the solution to the equation below?

$$16 = -\frac{32}{x}$$

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25. What is the area of the polygon shown below?



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26. A parallelogram has a base of 14 centimeters and a height of 20 centimeters. What is the area of the parallelogram?

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27. A right triangle has a height of 27 inches and a base of 30 inches. What is the area of the triangle?

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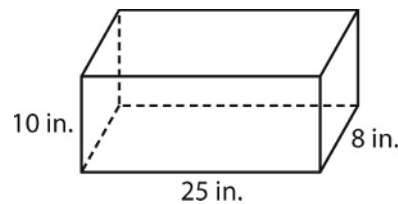
28. Marsha used about 400 square 1-inch tiles to cover a tabletop that was shaped like a right triangle. The length of one leg of the right triangle was 16 inches. What was the length of the other leg of the triangle?

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29. A box is 8 feet wide and 12 feet long. Vince uses 720 cubic feet of packing material to fill the box half full. What is the height of the box?

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Use the prism for 30 and 31.



30. What is the area of the top surface?

- A  $43 \text{ in}^2$
- B  $80 \text{ in}^2$
- C  $200 \text{ in}^2$
- D  $250 \text{ in}^2$

31. What is the volume of the prism?

- A  $430 \text{ in}^3$
- B  $800 \text{ in}^3$
- C  $1,600 \text{ in}^3$
- D  $2,000 \text{ in}^3$

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32. What is the greatest prime factor of 78?

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33. Identical boxes are stacked on top of each other in a store display. The display uses 6 boxes across, 6 boxes deep, and 6 boxes tall. How many boxes are there in the display?

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34. What is the value of the expression below?

$$120 \div \frac{2^5}{8} + 50 \times (15 - 8)$$

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35. Evaluate the expression below for  $g = 77$ .

$$1.2g$$

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36. Solve the equation below.

$$k - 6.2 = 24.8$$

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37. Yesterday, Denny ran 2 fewer miles than Jill did. Jill ran 6.4 miles yesterday. How many miles did Denny run?

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38. Sam has to read a 144-page book for his literature class. He has 8 days to finish it. He wants to read about the same number of pages each day. How many pages per day must he read to finish the book in 8 days?

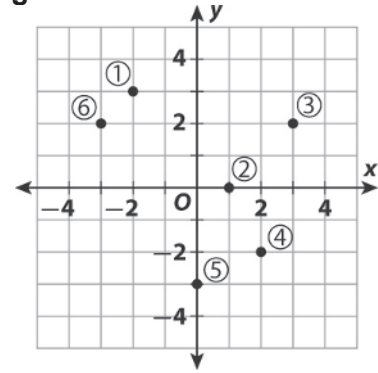
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39. Write an inequality to describe what is represented on the number line below.



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Use the grid for 40 and 41.



40. Write the number that labels the point that is located at  $(2, -2)$ .

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41. Two of the numbered points shown on the grid are located on the same horizontal line. What is the  $y$ -coordinate of any point on this same line?

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