

CCSS Math Samples — Grade 6

1. The Tully family wants to drive 515 miles to a national park. The gas tank of their car holds 20 gallons and they can drive on average 26 miles per gallon.

Can the family drive to the national park using just one tank of gas?

2. Look at the following.

$3b - 3m - 3 \frac{m}{3}$
---------------------------

Which are like terms?

- a)  $3b$  and  $\frac{m}{3}$                       b)  $3b$  and  $-3$   
 c)  $-3m$  and  $\frac{m}{3}$                       d)  $-3$  and  $-3m$

3. Using the associative property of multiplication, which of the following expressions is equal to  $(7b)c$ ?

- a)  $7b + c$                                   b)  $7b + 7c$   
 c)  $7 + bc$                                   d)  $7(bc)$

4. A certain stock has a price of \$150 per share. If the earnings per share is \$10, what is the price to earnings ratio?

5. Wally enjoys hot, fresh french fries. The table shows the rate to process potatoes into french fries at one plant.

Potato Processing Rate

Minutes	5	10	15	20	25	30
Potatoes (lbs)	150	300	450	600	750	?

At this rate, how many pounds of potatoes does the plant process into french fries in 30 minutes?

6. How far is the point  $(-3, -8)$  from the point  $(9, -8)$ ?

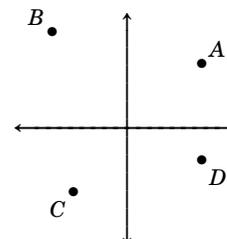
- a)  $-6$             b)  $-6$             c)  $12$             d)  $16$

7. The profit on a jacket can be found by the formula  $P = \$24x - \$125$ , where  $x$  is the number of jackets sold. What is the profit if 15 jackets are sold?

- a) \$235    b) \$240    c) \$245    d) \$255

8. What point on the graph meets the conditions  $x > 0$  and  $y < 0$ ?

- a)  $B$             b)  $C$   
 c)  $D$             d)  $E$



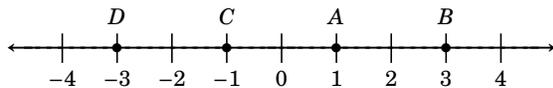
9. Jackson wrote the number while he talked on the phone.

0

Which of these could the number describe?

- a) the height in feet of a hockey goal net
- b) the percentage rate of a car loan
- c) the decrease in use of landline telephones
- d) the selling price of a rare work of art at an auction

10. This number line satisfies which of the following conditions?



- a)  $A = -C$
- b)  $B = -C$
- c)  $A = C$
- d)  $-A = -C$

11. What is the value of  $-(-7^0)$ ?

- a) 1
- b) -7
- c) -1
- d) 0

12. Translate “the quotient of  $s$  and four decreased by the square of the difference of  $t$  and one.”

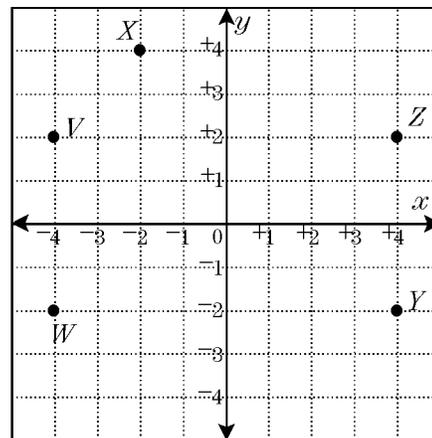
- a)  $(s - 4) - 2(t - 1)$
- b)  $(s \div 4) - 2(t - 1)$
- c)  $(4 \div s) - (t + 1)^2$
- d)  $(s \div 4) - (t - 1)^2$

13. It took Trudi 6 minutes to complete one math problem. How long will it take her to complete 15 problems?

14. The sixth grade went to the museum for a field trip. There are 75 students in the sixth grade, and 21 students did not go. What percentage of students did not go on the field trip?

- a) 12%
- b) 28%
- c) 50%
- d) 65%

15. Name the point with coordinates  $(-4, -2)$ .



- a) V
- b) W
- c) X
- d) Z

16. Rolf found that the *mean* life expectancy of automobile tires is 50,000 miles for the HotRod brand and 60,000 miles for the Kicks brand. The *median* life expectancy for HotRod is 65,000 miles and for Kicks is 55,000 miles. If Rolf values reliability above all else, which brand of tires should he choose, and why?

17. Insert one pair of parentheses to make each statement true.

a)  $7 \times 8 - 2 \div 2 = 21$

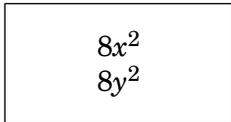
b)  $3 \times 2 + 3 \times 4 = 60$

18. A group of students took a math test with forty multiple-choice questions. The distribution of scores is displayed in the table.

Test Score	Number of Students
0–8	1
8–16	4
16–24	8
24–32	9
32–40	3

Find the mean deviation for the data.

19. Look at the terms and read the descriptions.



- A. like terms because coefficients are the same
- B. unlike terms because coefficients are different
- C. unlike terms because exponents are different
- D. unlike terms because variables are different

Which of the above describes the terms?

- a) A      b) B      c) C      d) D

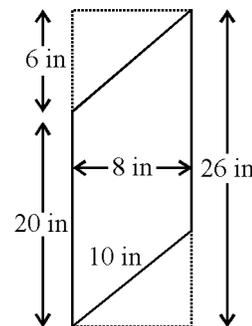
20. Read the questions.

- a. How many tractors are owned per square mile in rural Great Britain?
- b. Which model tractor required repairs most often?
- c. How many tractors does Mrs. Brinson own?
- d. Which model tractor is bought most often in Chile?

Which of these are statistical questions?

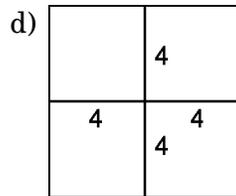
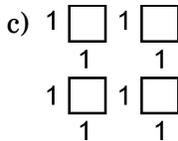
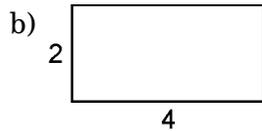
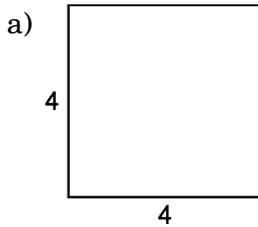
- a) d only                      b) b and c only  
 c) b, c and d only        d) a, b and d only

21. Alfred has a piece of wrapping paper, as shown in the figure. Two triangular pieces are cut from it. What is the total area, in square inches, of the pieces that he cut out?



- a) 160 square inches
- b) 96 square inches
- c) 48 square inches
- d) 24 square inches

22. Which of the following is the best representation of  $4 \times 4^2$ ?



23. What is another way of expressing  $5^4$ ?

- a)  $5 \times 4$                       b)  $4 \times 4 \times 4 \times 4 \times 4$   
 c)  $5 + 4$                       d)  $5 \times 5 \times 5 \times 5$

24. Write an algebraic expression for the following situation:

“four more than  $y$  plus two”

- a)  $2y + 4$                       b)  $(y + 2) + 4$   
 c)  $4 - (y + 2)$               d)  $4y + 2$

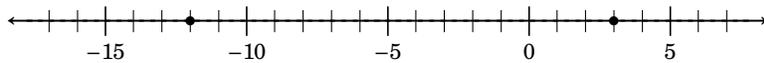
25. Look at the expression.

$$-2 - 3$$

Which of the following describes the expression?

- a) the difference of two terms  
 b) the product of a constant and a variable  
 c) the product of two terms  
 d) the quotient of two terms

26. Darla drew the number line in her notebook.



Darla wrote  $|3| > |-12|$ . Is she correct?

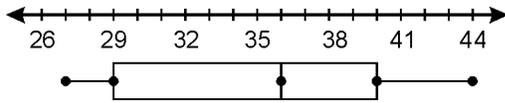
a) No, because  $-12$  is to the right of  $3$  on the number line.

b) No, because  $3$  units from zero  $<$   $12$  units from zero.

c) Yes, because  $3 > -12$ .

d) Yes, because any positive number is greater than any negative number.

27. Given this data:



Which statement can you conclude from the box-and-whisker plot?

- a) The median of the data is 36.
- b) The lower extreme of the data is 29.
- c) The upper extreme of the data is 40.
- d) The interquartile range makes up 100% of the data.

28. Look at the table.

$f$	?
6	24
7	28
3	12
2	8

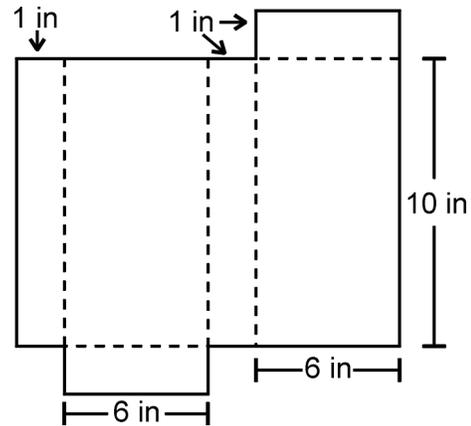
Which expression should go at the top of the second column?

- a)  $(f + 3) \times 2$
- b)  $f + 6$
- c)  $(f + 2) \times 3$
- d)  $f \times 4$

29. A family went on a bicycle trip. They rode their bicycles for 3 days, and each day they went 34 miles. What equation could the family use to find the total number of miles ( $m$ ) they rode?

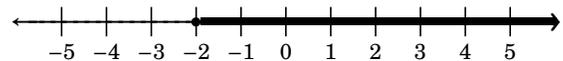
- a)  $\frac{m}{3} = 34$
- b)  $3m = 34$
- c)  $m - 3 = 34$
- d)  $m + 3 = 34$

30. What is the surface area of the box?



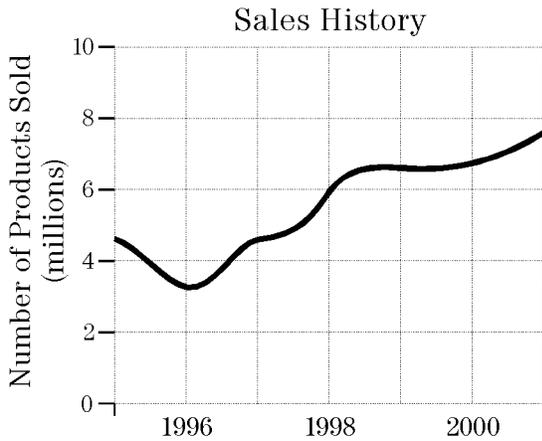
- a)  $120 \text{ in}^2$
- b)  $144 \text{ in}^2$
- c)  $152 \text{ in}^2$
- d)  $160 \text{ in}^2$

31. Which inequality is displayed on the number line?



- a)  $x > -2$
- b)  $x < -2$
- c)  $x \geq -2$
- d)  $x \leq -2$

32. Name the independent and dependent quantities respectively.



- a) Year, Sales History  
 b) Number Sold, Year  
 c) Sales History, Year  
 d) Year, Number Sold

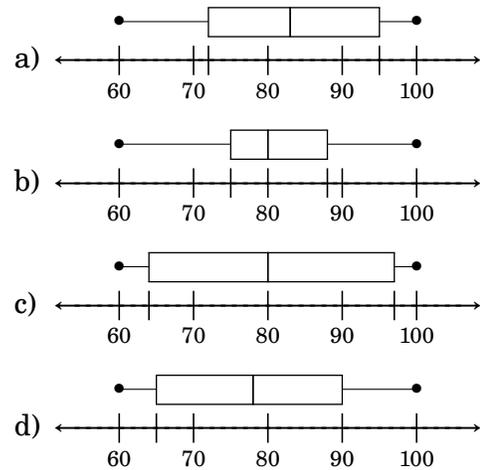
33. The scores on a science test were:

81, 68, 88, 76, 80, 69, 85, 93, 70, 90,  
 70, 69, 70, 78, 82, 74, 82, 90, 74, 98

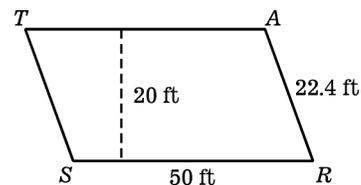
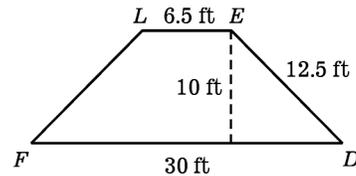
- a) Construct a frequency table using the intervals 95–100, 91–94, 87–90, 83–86, 79–82, 75–78, 71–74, 67–70  
 b) Using the table completed in part a, construct a frequency histogram and a cumulative frequency histogram.  
 c) Which interval contains the 80<sup>th</sup> percentile?  
 d) Which interval contains the upper quartile?

34. Which box-and-whisker plot represents the following information?

Temperatures: 90, 65, 78, 70, 100, 80, 60



35. Look at isosceles trapezoid *FLED* and Parallelogram *STAR*.



- a) Compare the two shapes. Describe at least four similarities or differences.  
 b) Find the area and perimeter of each figure.

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**Grade 6**

Num	Scoring	Standard	Answer				
1		6.RP.03B	yes, because $20 \times 26 = 520$ so they can drive at most 520 miles on one tank				
2	c	6.EE.04	$-3m$ and $\frac{m}{3}$				
3	d	6.EE.03	$7(bc)$				
4		6.RP.01	15 : 1				
5		6.RP.03A	900				
6	c	6.G.03	12				
7	a	6.EE.02C	\$235				
8	c	6.NS.06B	$D$				
9	b	6.NS.05	the percentage rate of a car loan				
10	a	6.NS.06A	$A = -C$				
11	c	6.EE.01	-1				
12	d	6.EE.02A	$(s \div 4) - (t - 1)^2$				
13		6.RP.03B	1 hour 30 minutes				
14	b	6.RP.03C	28%				
15	b	6.NS.06C	$W$				
16		6.SP.05D	HotRod				
17		6.EE.02C	$7 \times (8 - 2) \div 2 = 21$ ; $3 \times (2 + 3) \times 4 = 60$				
18		6.SP.05C	6.84				
19	d	6.EE.04	$D$				
20	d	6.SP.01	a, b and d only				
21	c	6.G.01	48 square inches				
22	d	6.EE.01	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td>4</td> </tr> <tr> <td>4</td> <td>4</td> </tr> </table>		4	4	4
	4						
4	4						
23	d	6.EE.01	$5 \times 5 \times 5 \times 5$				
24	b	6.EE.02A	$(y + 2) + 4$				
25	a	6.EE.02B	the difference of two terms				
26	b	6.NS.07D	No, because 3 units from zero < 12 units from zero.				
27	a	6.SP.05C	The median of the data is 36.				
28	d	6.EE.05	$f \times 4$				
29	a	6.EE.07	$\frac{m}{3} = 34$				

30	c	6.G.04	152 in <sup>2</sup>
31	c	6.EE.08	$x \geq -2$
32	d	6.EE.09	Year, Number Sold
33		6.SP.04	[table]; [graph]; 87–90; 83–86
34	d	6.SP.04	
35		6.G.01	<p>Similarities and differences may vary.</p> <p>Area of trapezoid: 182.5 ft<sup>2</sup>, Perimeter: 61.5 ft</p> <p>Area of parallelogram: 1000 ft<sup>2</sup>, Perimeter: 144.8 ft.</p>