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Mathematics

Grade 5 Item Sampler 2015–16



QA116019

1. Evaluate.

$$[10 + (6 + 5) \times 3]$$

Ⓐ 24

Ⓑ 31

Ⓒ 43

Ⓓ 63

2. Brian has 20 cards. Max gives him 4 cards, and Jill gives him 10 cards. Brian then gives half of his total cards to his little sister.

Which expression can be used to find how many cards Brian has?

Ⓐ $20 + 4 + \frac{10}{2}$

Ⓑ $\frac{(20 + 4 + 10)}{2}$

Ⓒ $\frac{(20 + 4 + 10)}{\left(\frac{1}{2}\right)}$

Ⓓ $\frac{20 + 4 + 10}{\left(\frac{1}{2}\right)}$

3. Which statements about these number patterns are true? Select all that apply.

a. 0, 4, 8, 12, —,...

b. 0, 8, 16, 24, —,...

Ⓐ The rule for pattern a is "Multiply by 2."

Ⓑ The rule for pattern b is "Add 8."

Ⓒ The next number in pattern a is 16.

Ⓓ The next number in pattern b is 30.

Ⓔ Both patterns will include the number 32.

Ⓕ Both patterns will include the number 28.

4. Choose an operation for each blank to make the number sentence true.

○ +	○ +	○ +	
○ -	○ -	○ -	
○ ×	○ ×	○ ×	7 = 9
○ ÷	○ ÷	○ ÷	

(25) 4) 3

5. A cook uses $1\frac{1}{2}$ cups of flour, $\frac{2}{3}$ cup of milk, and $\frac{3}{4}$ cup of cheese to make cheese biscuits. How many cups of ingredients are used altogether?

Ⓐ $1\frac{6}{9}$ cups

Ⓑ $2\frac{1}{6}$ cups

Ⓒ $2\frac{5}{12}$ cups

Ⓓ $2\frac{11}{12}$ cups

6. Use the information provided to answer Part A and Part B.

Jon buys 20 boxes of granola bars for the children at a day camp. Each box has 8 bars. Jon eats 3 bars himself. Then he takes the total number of granola bars left and divides them equally among n groups.

Part A

Which expression shows how many granola bars each group will get?

Ⓐ $(20 - 3) \times \frac{8}{n}$

Ⓑ $(20 \times 8) - \frac{3}{n}$

Ⓒ $\frac{(20 \times 8) - 3}{n}$

Ⓓ $20 \times 8 - 3 \div n$

Part B

For the expression in Part A, which value of n will result in the **least** number of bars per group?

Ⓐ $n = 1$

Ⓑ $n = 2$

Ⓒ $n = 5$

Ⓓ $n = 7$

7. Evaluate. Write your answer in the box.

$$[390 - (7 \times 6)] \div 6$$

8. What is 146.2584 rounded to the nearest hundredth?

Ⓐ 146.26

Ⓑ 146.258

Ⓒ 146.3

Ⓓ 150

9. Choose the symbol to complete the comparison.

	<input type="radio"/> >	
37.065	<input type="radio"/> =	37.104
	<input type="radio"/> <	

10. Which three expressions are equal to 57,000?

- Ⓐ $57 \times 1,000$
- Ⓑ 57×100
- Ⓒ 5.7×10^3
- Ⓓ 57×10^3
- Ⓔ 570×100
- Ⓕ 570×10^3

11. Write 72.84 in expanded form by choosing the number that goes in each box.

(7 ×	<input type="radio"/> 1)	+ (2 ×	<input type="radio"/> 1)	+ (8 ×	<input type="radio"/> 1)
	<input type="radio"/> 10			<input type="radio"/> 10			<input type="radio"/> $\frac{1}{10}$	
	<input type="radio"/> 100			<input type="radio"/> 100			<input type="radio"/> $\frac{1}{100}$	

+ (4 ×	<input type="radio"/> 1)
	<input type="radio"/> $\frac{1}{10}$	
	<input type="radio"/> $\frac{1}{100}$	

12. For the number in Column A, choose the best description of that number in Column B.

Column A	Column B			
34.018	<input type="radio"/> 1 is in the ones place.	<input type="radio"/> 1 is in the hundredths place.	<input type="radio"/> 1 is in the tens place.	<input type="radio"/> 1 is in the thousandths place.
278.521	<input type="radio"/> 1 is in the ones place.	<input type="radio"/> 1 is in the hundredths place.	<input type="radio"/> 1 is in the tens place.	<input type="radio"/> 1 is in the thousandths place.
81.325	<input type="radio"/> 1 is in the ones place.	<input type="radio"/> 1 is in the hundredths place.	<input type="radio"/> 1 is in the tens place.	<input type="radio"/> 1 is in the thousandths place.
4,215.08	<input type="radio"/> 1 is in the ones place.	<input type="radio"/> 1 is in the hundredths place.	<input type="radio"/> 1 is in the tens place.	<input type="radio"/> 1 is in the thousandths place.

13. Alberto, Marina, and Tom shared a dozen eggs. Alberto ate $\frac{1}{3}$ of the eggs, Marina ate $\frac{1}{4}$ of the eggs, and Tom ate $\frac{2}{6}$. What fraction of the dozen eggs was left?

- Ⓐ $\frac{1}{12}$
- Ⓑ $\frac{4}{13}$
- Ⓒ $\frac{9}{13}$
- Ⓓ $\frac{11}{12}$

14. Four friends bought 10 pounds of mixed nuts and shared them equally. How many pounds of nuts did each friend get?

Ⓐ 2 pounds

Ⓑ $2\frac{1}{4}$ pounds

Ⓒ $2\frac{1}{2}$ pounds

Ⓓ 3 pounds

15. Darnell runs $2\frac{3}{4}$ miles every day, 5 days per week. Which two equations can be used to find the total number of miles (t) he runs each week? Select **two** correct answers.

Ⓐ $(5 \times 2) + \frac{3}{4} = t$

Ⓑ $5 \times \frac{11}{4} = t$

Ⓒ $\frac{23}{4} \times 5 = t$

Ⓓ $5 \times 2 \times \frac{3}{4} = t$

Ⓔ $5 \times \frac{6}{4} = t$

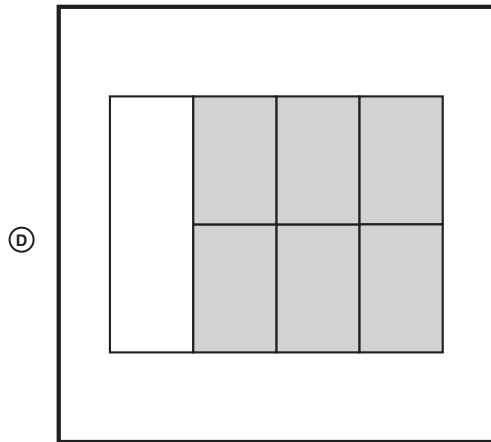
Ⓕ $(5 \times 2) + \left(5 \times \frac{3}{4}\right) = t$

16. Miko buys $\frac{3}{4}$ pound of tuna. She wants to split it into 6 equal portions. Select each model that correctly shows a way to determine the size of each portion.

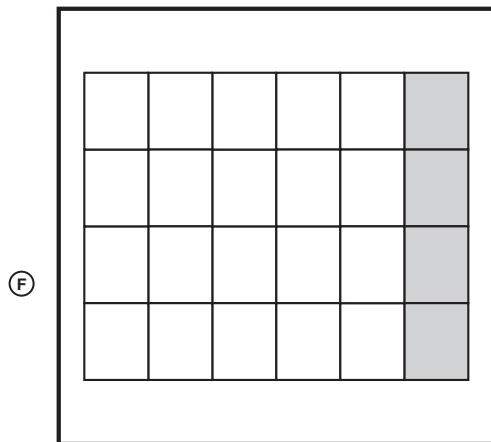
(A) $6 \times \frac{3}{4} = \square$

(B) $\frac{3}{4} \div \frac{1}{6} = \square$

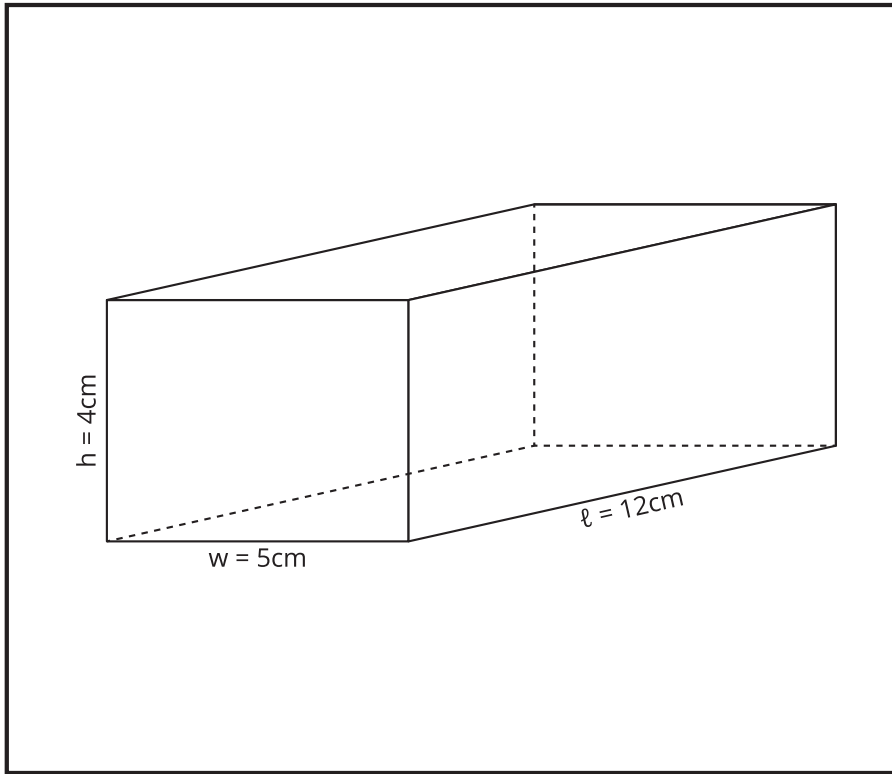
(C) $\frac{3}{4} \div 6 = \square$



(E) $\frac{3}{4} \times \frac{1}{6} = \square$

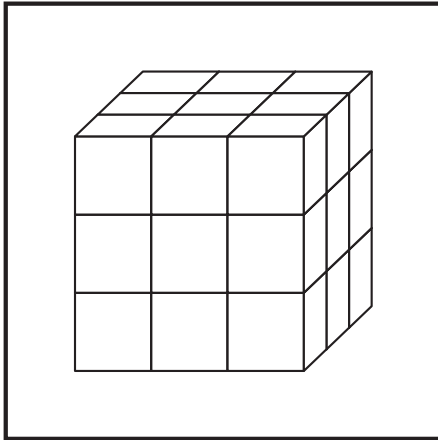


17. The figure below shows a right rectangular prism. What is the volume of this shape?



- Ⓐ 21 cubic centimeters
- Ⓑ 48 cubic centimeters
- Ⓒ 60 cubic centimeters
- Ⓓ 240 cubic centimeters

18. What is the volume of the cube in cubic units?



- Ⓐ 9 cubic units
- Ⓑ 12 cubic units
- Ⓒ 18 cubic units
- Ⓓ 27 cubic units

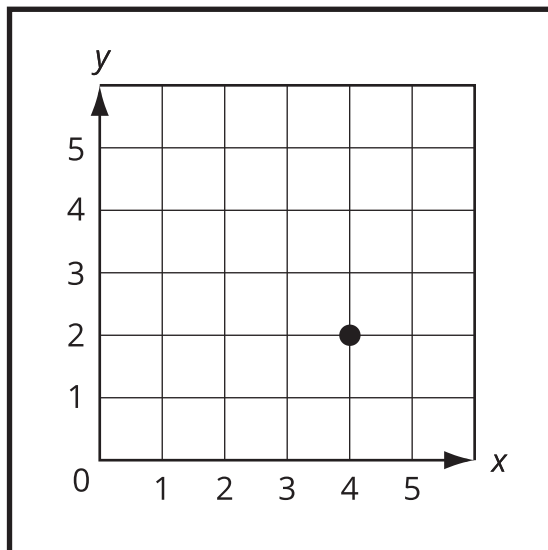
- 19.** The length of each side of a cube with a volume of 8 cubic centimeters is increased by a factor of 3. Which three statements about the larger cube are correct?
- Ⓐ The volume of the larger cube is 24 cubic centimeters.
 - Ⓑ The length of each side of the larger cube is 6 centimeters.
 - Ⓒ The larger cube can hold exactly 3 times as much water as the small cube.
 - Ⓓ The larger cube can hold 27 times more water than the small cube.
 - Ⓔ The volume of the larger cube is 216 cubic centimeters.
 - Ⓕ The volume of the larger cube equals 8 cubic centimeters times 3.
- 20.** For each measurement in Column A, choose its equivalent measure in Column B.

Column A	Column B			
2.5 m	<input type="radio"/> 25,000 cm	<input type="radio"/> 250 cm	<input type="radio"/> 2,500 cm	<input type="radio"/> 0.25 m
25 cm	<input type="radio"/> 25,000 cm	<input type="radio"/> 250 cm	<input type="radio"/> 2,500 cm	<input type="radio"/> 0.25 m
25 m	<input type="radio"/> 25,000 cm	<input type="radio"/> 250 cm	<input type="radio"/> 2,500 cm	<input type="radio"/> 0.25 m
250 m	<input type="radio"/> 25,000 cm	<input type="radio"/> 250 cm	<input type="radio"/> 2,500 cm	<input type="radio"/> 0.25 m

21. An equilateral triangle has three sides of the same length. What other statement about equilateral triangles is true?

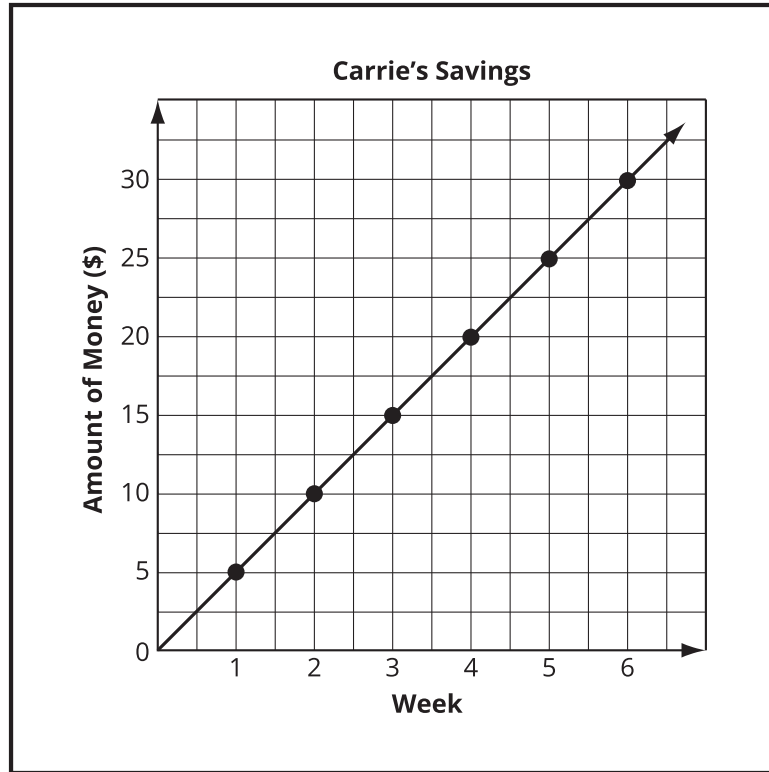
- Ⓐ Equilateral triangles have three equal angles.
- Ⓑ Equilateral triangles are also scalene triangles.
- Ⓒ Every equilateral triangle has one right angle.
- Ⓓ Every equilateral triangle has at least one obtuse angle.

22. What are the coordinates for the point shown on the coordinate plane?



- Ⓐ (2, 4)
- Ⓑ (4, 2)
- Ⓒ (-2, 4)
- Ⓓ (-4, 2)

23. The graph below shows how much money Carrie saved from babysitting during the summer. She put the money in a bank account.



Which statements about Carrie's savings are true? Select **three** correct answers.

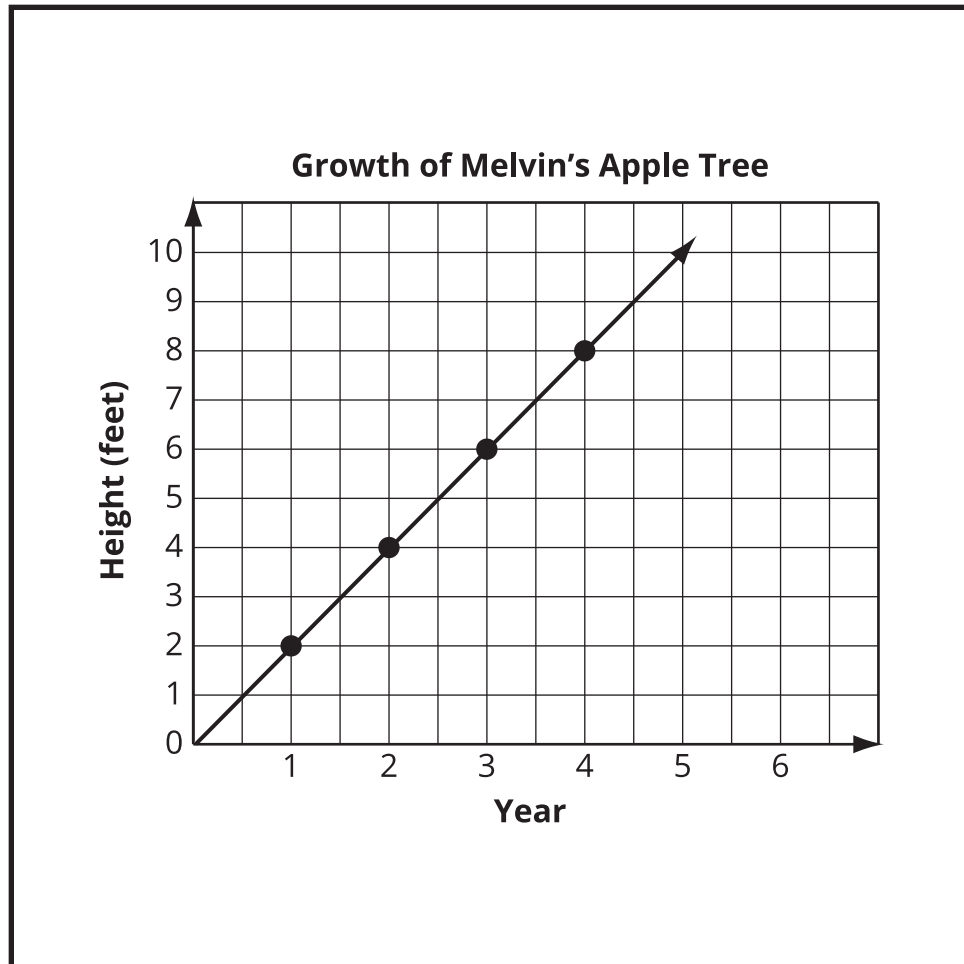
- Ⓐ She saved \$5 every week.
- Ⓑ By Week 2, Carrie had saved a total of \$5.
- Ⓒ After 4 weeks, she had saved \$20.
- Ⓓ After 3 weeks, Carrie had saved \$15.
- Ⓔ Carrie's savings doubled every week.
- Ⓕ By Week 6, Carrie had saved \$50.

- 24.** In the table below, select the box beside each statement about quadrilaterals that is true.

All rectangles are squares.	<input type="radio"/>
Every parallelogram is a rectangle.	<input type="radio"/>
All squares are trapezoids.	<input type="radio"/>
Every square is a rhombus.	<input type="radio"/>
Every trapezoid is a rectangle.	<input type="radio"/>
A rhombus may be a rectangle.	<input type="radio"/>

25. Use the information provided to answer Part A and Part B.

Melvin planted an apple tree. He measured how much the tree grew each year and plotted the growth on a graph.



Part A

How much did the tree grow each year?

- Ⓐ 1 Foot
- Ⓑ 2 Feet
- Ⓒ 3 Feet
- Ⓓ 4 Feet

Part B

At the rate of growth from Part A, how much will the tree grow by Year 6?

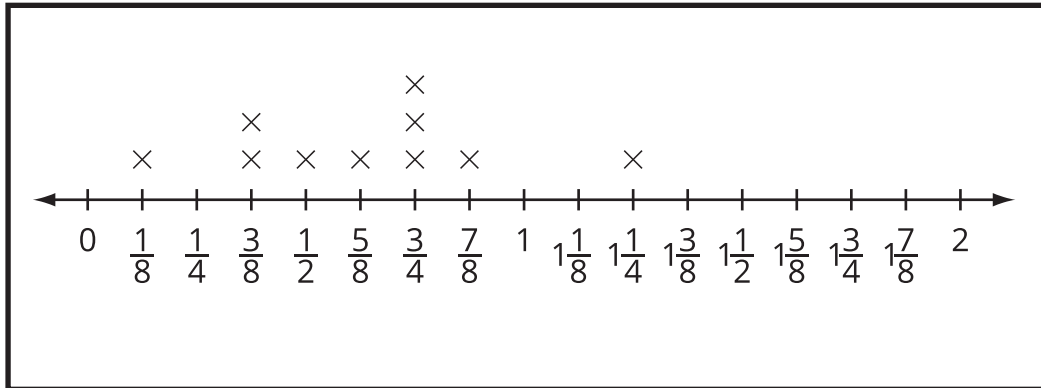
- Ⓐ 2 Feet
- Ⓑ 6 Feet
- Ⓒ 10 Feet
- Ⓓ 12 Feet

DIRECTIONS: Use the information provided to answer questions 1–6.

Amy and Leon make model hot-air balloons and fly them to see how far they go.

1. Their first balloon traveled $\frac{1}{4}$ mile. The second balloon traveled $\frac{2}{3}$ mile. How much farther did the second balloon travel, compared to the first?
- Ⓐ $\frac{2}{12}$ mile
- Ⓑ $\frac{3}{12}$ mile
- Ⓒ $\frac{5}{12}$ mile
- Ⓓ $\frac{8}{12}$ mile

2. According to the line plot, how many balloons flew more than $\frac{4}{8}$ mile?



- Ⓐ 3
- Ⓑ 4
- Ⓒ 6
- Ⓓ 7
3. Amy's best balloon flew 1.7 kilometers. How many meters did it travel?

Write the solution in the box.

meters

4. The basket attached to each model balloon is a rectangular box. The box is 10 inches long and 8 inches wide. The volume of the box is 400 cubic inches. What is the height of the box (in inches)?

Write the answer in the box.

inches

5. A model hot-air balloon weighs about $1\frac{3}{4}$ pounds. Leon wants to make a new balloon that weighs $1\frac{1}{2}$ times as much as the original. About how much will the new balloon weigh?

- Ⓐ 0–1 pounds
- Ⓑ 2–3 pounds
- Ⓒ 4–5 pounds
- Ⓓ 6–7 pounds

6. A model hot-air balloon uses about $\frac{1}{4}$ pound of fuel for a flight. Amy and Leon buy $3\frac{1}{2}$ pounds of fuel. Which equation shows how many balloon flights (f) they can make with this fuel?

Ⓐ $3\frac{1}{2} \div \frac{1}{4} = f$

Ⓑ $3\frac{1}{2} \div 4 = f$

Ⓒ $\frac{7}{2} \div 4 = f$

Ⓓ $3\frac{1}{2} \times \frac{1}{4} = f$

