

Mathematics Grade 6 Unit 05: Algebraic Representation and Applications 2012-2013



- 1 This table shows the different sizes of pegboard available at a hardware store.

Pegboard	Length (in feet)	Width (in feet)
Style 1	2	3
Style 2	4	6
Style 3	6	8
Style 4	10	12

Shannon decided to choose the Style 3 pegboard. Which equation can be used to find P , the perimeter of Shannon's pegboard?

- A** $6 \times 8 = P$
- B** $(6 \times 8) \times 2 = P$
- C** $6^2 + 8^2 = P$
- D** $(6 \times 2) + (8 \times 2) = P$
- 2 Roger has six 12-inch pieces of a toy racecar track. Steven has one nine-inch piece for his toy racecar track. Write an equation which can be used to find T , the number of nine-inch pieces Steven needs to equal the same length as Roger's 12-inch pieces.

- 3 Karen has a holiday job wrapping gifts at a department store. She cuts the rectangular wrapping paper from a roll. The table below shows how the area, A , of a piece of wrapping paper changes depending on the length, l , of the paper cut from the roll.

Length <i>(l)</i>	Width <i>(w)</i>	Area <i>(A)</i>
3		60
6		120
9		180
12		240

Complete the table to show the width of the wrapping paper. Use the table to write an equation that can be used to find w , the width of the rectangular wrapping paper, when the length of the wrapping paper is 14.

- 4 The table below shows the relationship between quarts and gallons.

Quarts q	Gallons g
5	$1\frac{1}{4}$
6	$1\frac{1}{2}$
8	2
9	$2\frac{1}{4}$

Which of the following equations BEST represents the relationship between quarts, q , and gallons, g ?

F $g = q - 3\frac{1}{4}$

G $g = q - 4\frac{1}{2}$

H $g = q \div 4$

J $g = q \times 4$

- 5 Laura has a 2-liter bottle of juice. Which equation could be used to convert liters, L , to an equivalent amount of milliliters, ml ?

A $ml = L \div 1000$

B $ml = 1000 L$

C $ml = L \div 100$

D $ml = 100 L$

- 6 This table shows the mass of four dogs in kilograms and grams.

Number of Dogs	Kilograms k	Grams g
1	25.8	25,800
2	21.4	21,400
3	9.8	9,800
4	11.7	11,700

If a fifth dog weighs 14.3 kilograms, which equation could be used to find its mass, g , in grams?

- F** $g = 14.3 \cdot 1,000$
- G** $g = 14.3 + 1,000$
- H** $g = 14.3 \div 100$
- J** $g = 14.3 - 1,000$
- 7 This table shows the amount of pumpkin filling, in ounces and pounds, in some pumpkin pies.

Ounces o	Pounds p
24	$1\frac{1}{2}$
28	$1\frac{3}{4}$
40	$2\frac{1}{2}$

If a pie has 36 ounces of pumpkin filling in it, which equation could be used to find the amount of pumpkin, in pounds, p ?

- A** $p = 36 - 23\frac{1}{2}$
- B** $p = 36 + 16$
- C** $p = 36(16)$
- D** $p = 36 \div 16$

8 Which table represents the relationship between cups and pints?

F

Cup(s)	Pint(s)
1	$\frac{1}{2}$
2	1
3	$1\frac{1}{2}$
4	2

G

Cup(s)	Pint(s)
$\frac{1}{2}$	1
1	2
$1\frac{1}{2}$	3
2	4

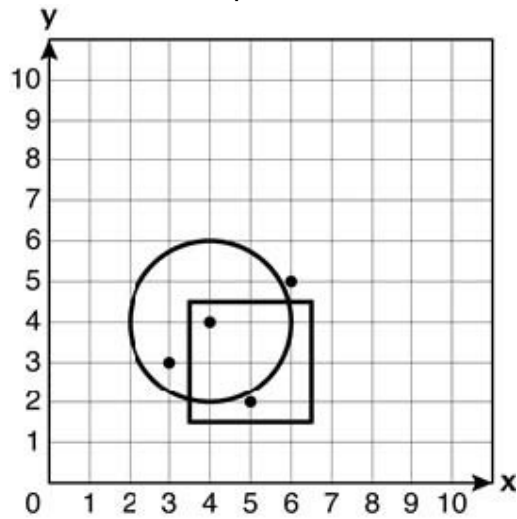
H

Cup(s)	Pint(s)
1	2
2	4
3	6
4	8

J

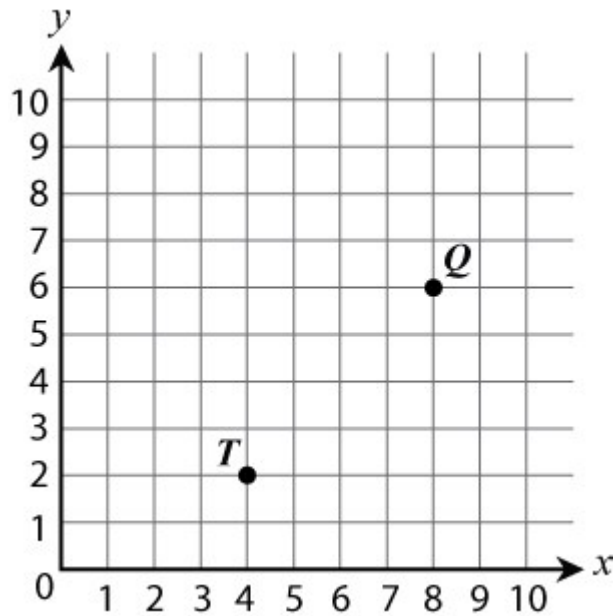
Cup(s)	Pint(s)
2	$\frac{1}{2}$
4	1
6	$1\frac{1}{2}$
8	2

- 9 Which coordinate pair is inside both the square and the circle?



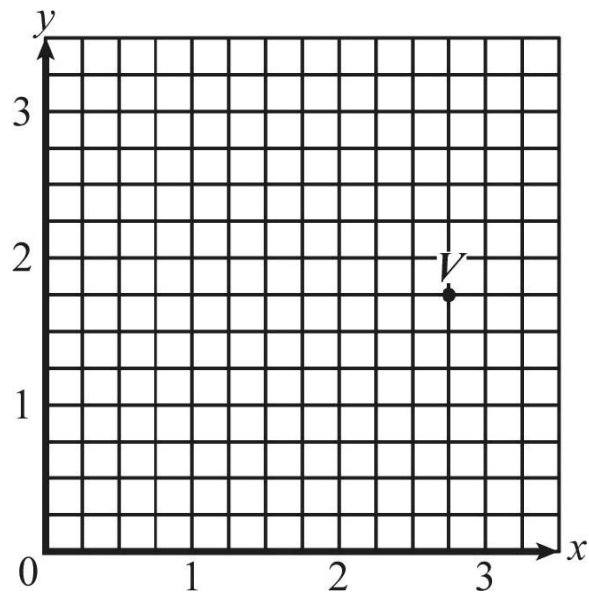
- A (6, 5)
- B (4, 4)
- C (5, 2)
- D (3, 3)

- 10 What point would represent half-way between points T and Q?



- F (6, 5)
- G (5, 6)
- H (4, 6)
- J (6, 4)

11 Which coordinate pair BEST represents Point V ?

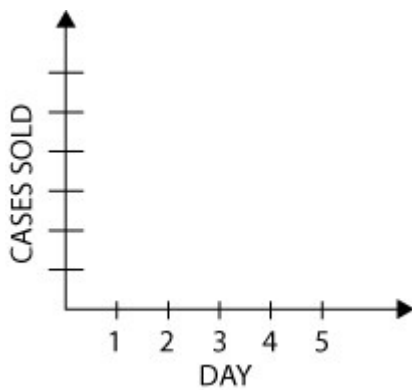


- A (1.75, 2.75)
- B (2.3, 1.3)
- C (2.75, 1.75)
- D (1.3, 2.3)

12 Imagine that a market had 300 cases of a popular snack. The first day 6 cases were sold. The second day 14 cases were sold. Each day 8 more cases were sold than the day before.

A. Create a table to show the number of cases sold for the first FIVE days.

B. Graph the information from your table.



C. Is this relationship proportional?
Why or why not?

Test Key

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##	Item #	Correct Answer	Primary SE	Secondary SE	Obj/Cat
1	M061146274D	D	6.4(B) [S]	6.12(A) [P]	STAAR: M2
2	M061088113D	$T = (6 \times 12) \div 9$	6.5(A) [R]	6.11(C) [P]	STAAR: M2
3	M061090026D	width = 20; $w = A/l$ or $w = 280/14$	6.4(B) [S]	6.13(B) [P]	STAAR: M2
4	M061150035D	H	6.5(A) [R]	6.13(A) [P]	STAAR: M2
5	M061092869D	B	6.5(A) [R]	6.11(A) [P]	STAAR: M2
6	M061150041D	F	6.4(A) [R]	None	STAAR: M2
7	M061150050D	D	6.4(A) [R]	6.13(A) [P]	STAAR: M2
8	M061150052D	F	6.4(A) [R]	6.13(A) [P]	STAAR: M2
9	M063023266	B	6.7(A) [S]	None	STAAR: M3
10	M061096025D	J	6.7(A) [S]	None	STAAR: M3
11	M061096030D	C	6.7(A) [S]	None	STAAR: M3
12	M061096371D	<p>A. Table should have two columns: under a column for "Day", the numbers 1-5 should be entered; under the column for "Cases Sold" they should have listed 6, 14, 22, 30, and 38.</p> <p>B. Check students graphs for accuracy.</p> <p>C. No, it is not proportional. One reason could be because the line on the graph does not go through the origin.</p>	6.4(A) [R]	None	STAAR: M2