

Topic No. 07

Proportional Relationships



Question 1

Jocelyn was shopping at a farmers' market. She observed the prices of cucumbers at several stands. Which sign shows a proportional relationship in the pricing of the cucumbers?

A

Joe's Stand	
5 cucumbers	for \$2.50
10 cucumbers	for \$4.00
15 cucumbers	for \$5.50
20 cucumbers	for \$7.00

C

Betty's Stand	
5 cucumbers	for \$2.00
10 cucumbers	for \$4.00
15 cucumbers	for \$6.00
20 cucumbers	for \$8.00

B

Steve's Stand	
5 cucumbers	for \$2.50
10 cucumbers	for \$4.50
15 cucumbers	for \$6.50
20 cucumbers	for \$8.50

D

Lula's Stand	
5 cucumbers	for \$1.50
10 cucumbers	for \$3.00
15 cucumbers	for \$6.00
20 cucumbers	for \$12.00

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Question 2

Last week Len spent \$18 to bowl 4 games. This week he spent \$27 to bowl 6 games. Len owns his bowling ball and shoes, so he only has to pay for each game that he bowls. If each of these bowling games costs the same amount of money, what is the constant of proportionality between the money spent and the number of games played?

- A 1.5
- B 2.0
- C 4.5
- D 9.0

Question 3

The relationship between the length of one side of a square, x , and the perimeter of the square, y , can be represented in an xy -plane by a straight line. Which of the points with coordinates (x, y) lie on the line?

- A (2, 6)
- B (2, 8)
- C (6, 2)
- D (8, 2)

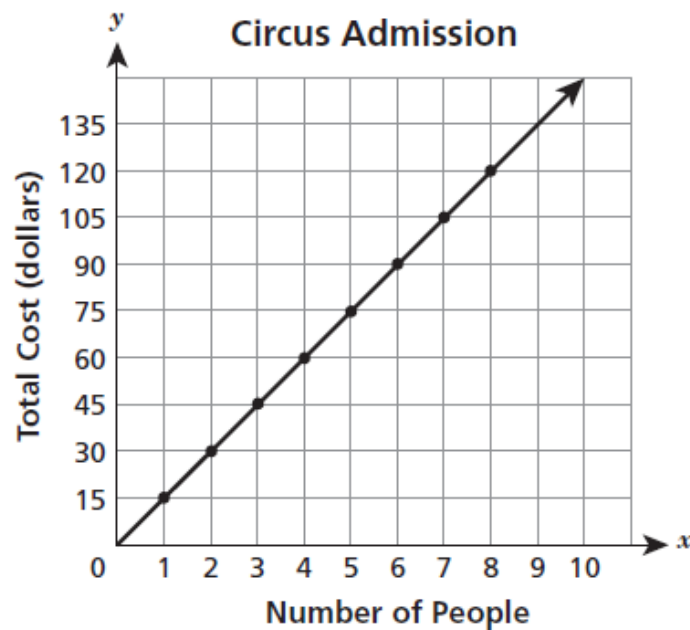
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Question 4

The graph below shows the relationship between the number of people in a group and the total cost of admission tickets for a circus.



What point on the graph represents the unit rate?

- A (0, 0)
- B (1, 15)
- C (15, 1)
- D (8, 120)

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Question 5

Three friends own a landscaping business. The number of hours each friend spent on the same project is shown in the table below.

**HOURS WORKED ON
LANDSCAPING PROJECT**

Name	Hours Worked
Edgar	$17\frac{1}{4}$
Kelly	$18\frac{1}{4}$
Shawn	$14\frac{1}{2}$

In total, they earned \$850 for the job. They put 15% of this amount into a joint savings account for future expenses. They then divided the rest proportionally based on the number of hours each worked. How much money did Shawn receive?

- A \$209.53
- B \$240.83
- C \$283.48
- D \$295.11

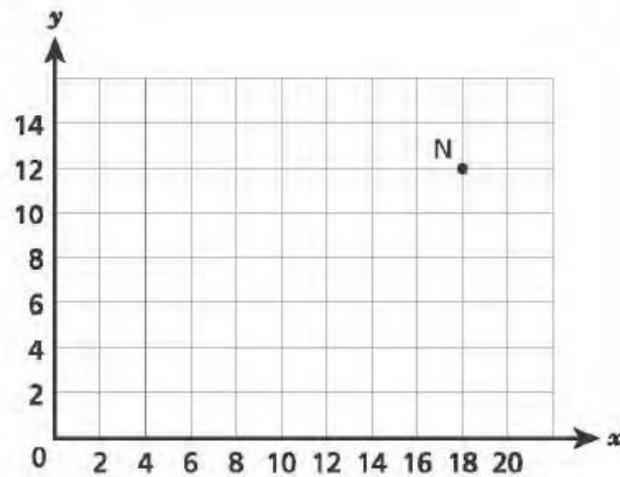
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Question 6

Line KN represents a proportional relationship. Point N lies at $(18, 12)$, as shown on the graph below.



Which ordered pair could represent the coordinates of point K?

- A $(6, 0)$
- B $(2, 3)$
- C $(1.5, 0)$
- D $(7.5, 5)$

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Question 7

Maya uses blue and orange fabric to make identical wall decorations. The graph below shows the relationship between the amounts of blue and orange fabric used.



What is the constant of proportionality as shown in the graph?

- A $\frac{3}{10}$
- B $\frac{2}{5}$
- C $\frac{3}{7}$
- D $\frac{1}{2}$

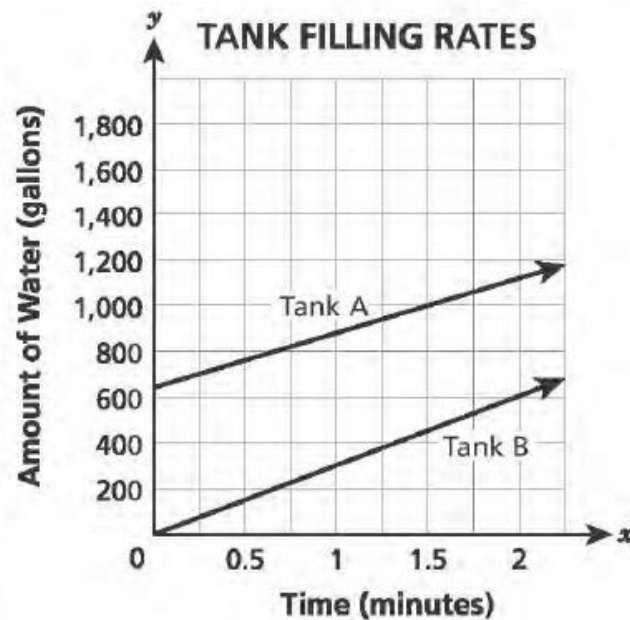
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Question 8

The lines graphed below show the amounts of water in two tanks as they were being filled over time.



For each tank, explain whether or not there is a proportional relationship between the amount of water, in gallons, and the time, in minutes. If there is a proportional relationship, identify the unit rate. Use specific features of the graph to support your answer.