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Which tables are proportional? Both are!

# of Mules	Bales of Hay
2	1
4	2
6	3
8	4
10	5

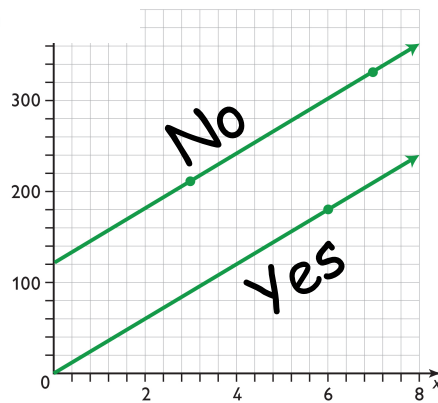
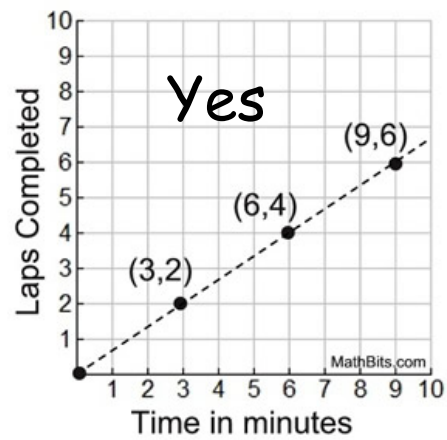
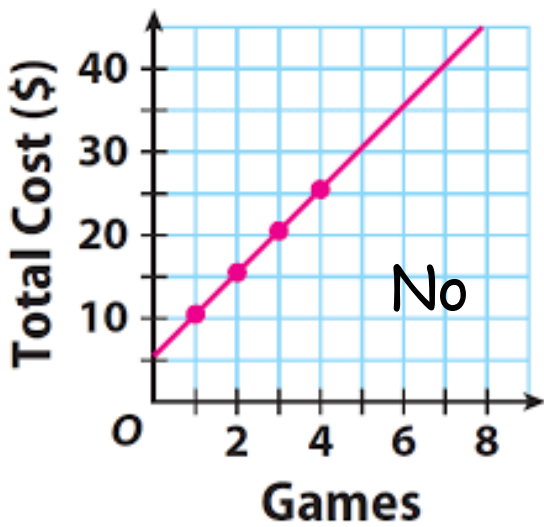
Handwritten annotations: A blue circle surrounds the entire table. A blue arrow points from the value '2' in the first row to the value '10' in the fifth row. A blue arrow points from the value '1' in the first row to the value '5' in the fifth row. The text "Both x 5" is written in blue between the first and fifth rows. Green arrows form a cycle: from 2 to 4, 4 to 6, 6 to 8, 8 to 10, and from 1 to 2, 2 to 3, 3 to 4, 4 to 5.

Distance (Leagues)	1	2	6	12	20,000
Distance (Miles)	3	6	18	36	60,000

Handwritten annotations: The text "Both Double" is written in green above the first row, with a green arrow pointing from 1 to 2. The text "Both Double" is written in green below the second row, with a green arrow pointing from 3 to 6.

Which graphs are proportional?

Proportional graphs: Straight lines starting at  $(0, 0)$



Can you use the unit rate to write a formula that Jell E. Bean can use to calculate the amount any customer will pay?

\$6.40 / lb yogurt

From last week  
or

$$6.40P = C$$

$P = \text{pounds}$   
 $C = \text{cost } \$$

$$P(6.40) = C \quad \text{or} \quad 6.40 \cdot P = C$$

Jell E. Bean decides to start charging \$0.50 for each cup before her customers started filling it with yogurt and toppings. Write a new equation to find the cost of any sundae.

\$6.40/lb

From last week

$$C = (6.40 \cdot y) + 0.50$$




What is Robert's unit rate?

$$\frac{420 \text{ miles}}{12 \text{ gallons}} = \frac{35 \text{ miles}}{1 \text{ gallon}}$$

From last week

unit rate



Work with your team to write the **equation** to find the exact number of miles Robert can drive with any number of gallons of gas. Be prepared to share your strategy.

$$35 \cdot G = M \quad G = \text{gallons} \quad M = \text{miles}$$

Four pounds of ~~chicken~~ costs \$7.00.

~~lbs~~ ~~cheese~~

Is this a proportional relationship?

yes

Write an equation to calculate the cost (c) for any weight in pounds (p) of chicken.

(or cheese)

$$C = 1.75p$$

$$C = \frac{7}{4}P$$

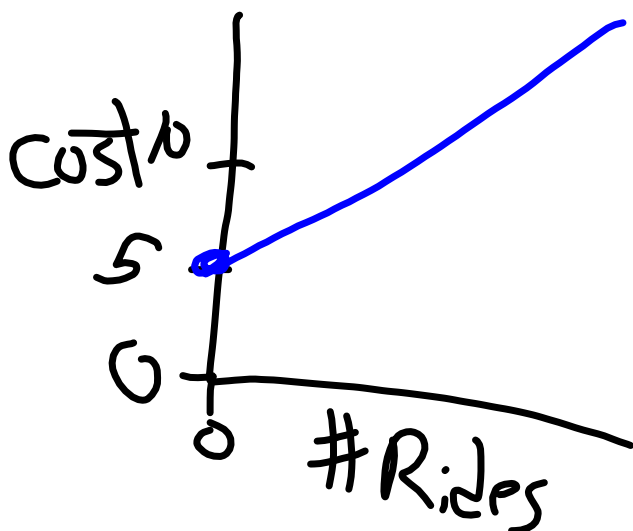
$$C = \frac{3}{4}p$$

The county fair costs \$5.00 to enter and \$2.00 per ride. Is this a proportional relationship? **No**

Write an equation to calculate the cost (C) for any number of rides (R); for 1 person

$$C = 2.00r + 5.00$$

$$C = 5 + 2R$$



1 Ride = \$7  
2 Rides = \$9

county fair

$$C = 5 + 2 \cdot R$$

not proportional

chicken proportional

$$C = 1.75p$$

yogurt

$$C = 6.40 \cdot P$$

proportional

yogurt plus cup

$$C = (6.40 \cdot Y) + 0.50$$

not proportional

Roger's gas

$$35 \cdot G = M$$

proportional

How can we recognize proportion equations?

Multiplication only, no adding or subtracting

Proportional Equations

$$y = kx$$

↓  
constant of proportionality