

Patterns in proportional relationships

Block 4 Student Activity Sheet

1. Consider the tables representing the cost of pizzas with delivery and the cost of pizzas without a delivery charge.

Pizzas without delivery

Number of pizzas	Cost in dollars	$\frac{\text{cost}}{\text{pizza}}$
1	7	
2	14	
3	21	
4	28	

Pizzas with delivery

Number of pizzas	Cost in dollars	$\frac{\text{cost}}{\text{pizza}}$
1	12	
2	19	
3	26	
4	33	

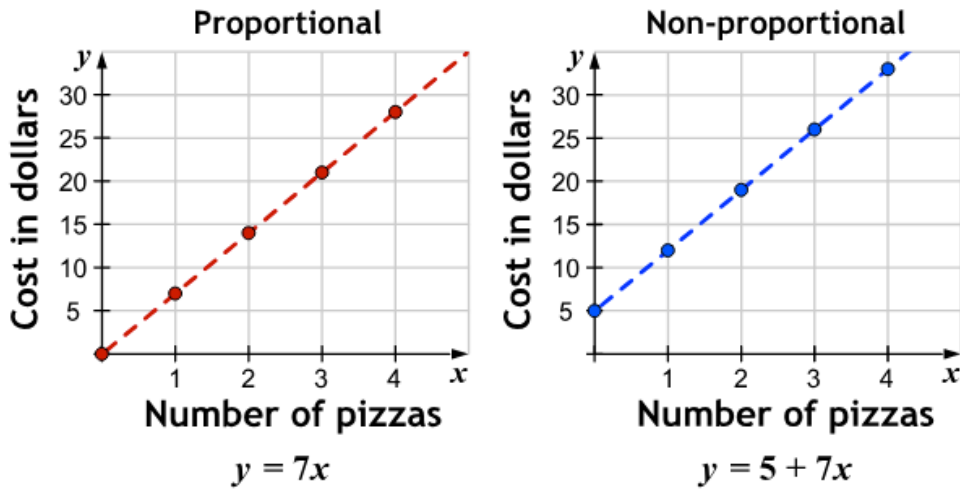
- a. Complete the table for pizzas with delivery by filling in the quotients. What do you notice about these quotients?

- b. Complete the table for pizzas without delivery by filling in the quotients. What do you notice about these quotients?

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2. Compare the graphs and algebraic rules of the two pizza scenarios.



a. What is the rate of change for each of these graphs? In other words, for each additional pizza, how much is added to the cost?

b. For the proportional situation, how can you identify the constant of proportionality?

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3. **REINFORCE** The values in the tables represent points on lines.

A	
x	y
0	4
1	11
2	18

B	
x	y
0	0
1	7
2	14

C	
x	y
0	7
1	7.50
2	8.00

D	
x	y
0	0
1	2
2	4

- When a relationship is proportional, you can multiply by the input value to get the output value. Which tables represent proportional relationships?
- When a relationship is non-proportional, you cannot just multiply by the input value to get the output value. Which tables represent relationships that are non-proportional?
- Graph the points from the tables. Draw a different colored line through each set of points. Label the lines **A**, **B**, **C**, and **D**, corresponding to the tables.



- Which graphs represent relationships that are proportional? How can you tell by looking at the graph?

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4. **REINFORCE** Mario’s Pizza sells medium pizzas for \$5.50 and \$1.50 per topping.

a. Fill in the table. Then graph the points.

Number of toppings, x	Cost in dollars, y
0	
1	



b. Write an algebraic rule relating the price of the pizza to the number of toppings.

c. Does this situation represent a proportional or non-proportional relationship? Explain.

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5. **REINFORCE** Mario’s Pizzas sells large cheese pizzas for \$9.00 and will deliver locally for a charge of \$3.00.

a. Fill in the table. Then graph the points.

Number of pizzas, x	Cost in dollars, y
1	



b. Write an algebraic rule relating the cost to the number of pizzas.

c. Does this situation represent a proportional or non-proportional relationship? Explain.