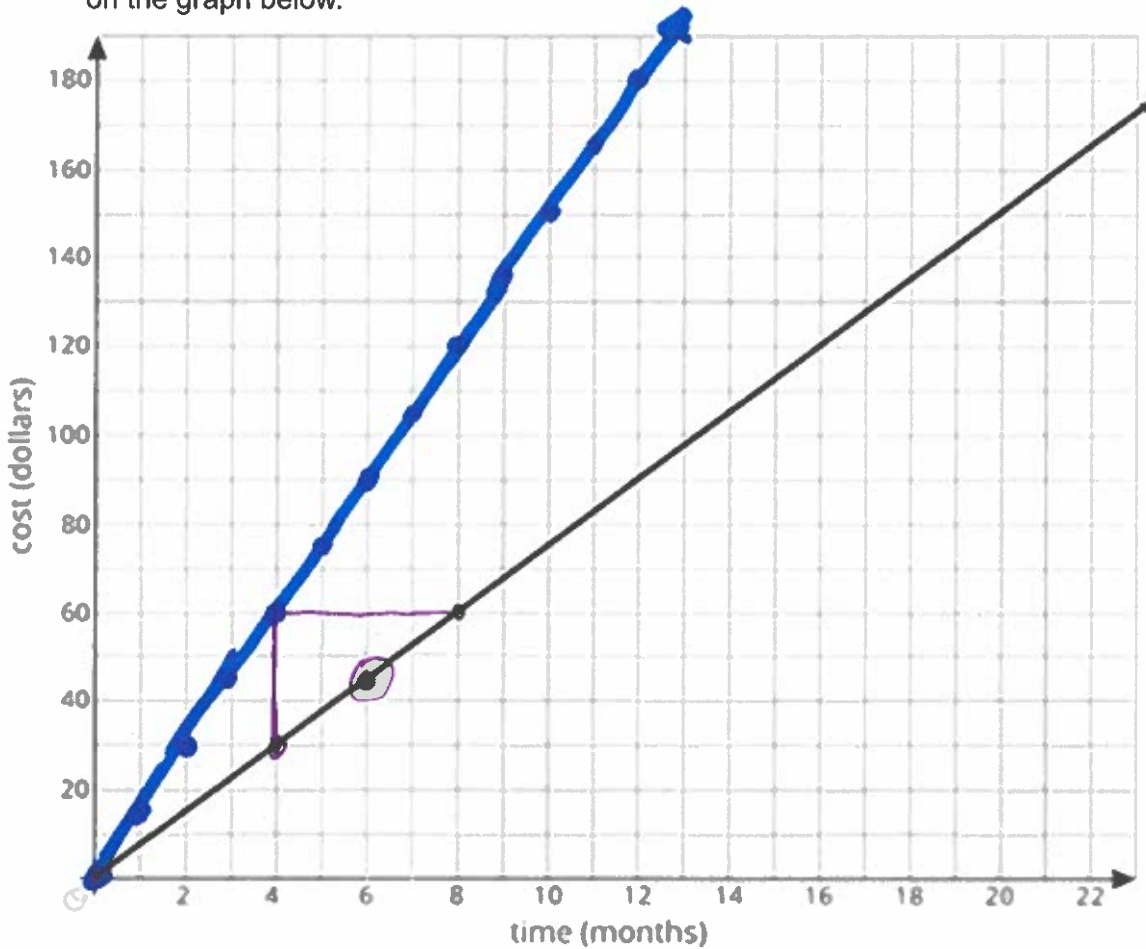


Unit 3 Proportional Relationships Review

Name: _____ hour: _____

1. A streaming movie subscription charges **\$45 for 6 months**. The point (6, 45) is shown on the graph below.



$\frac{30}{x}$

$\frac{45}{6}$

$\frac{\$15}{1 \text{ month}}$

- a. How much does this service cost per month?

$\$7.50 \text{ per month}$

- b. Write an equation that represents the relationship between Y , the total cost of the subscription, and x , the number of months.

$y = 7.50x$

- c. A T.V. show subscription charges twice as much as the movie subscription. Find out what they charge per month and draw a line on the graph that represents the cost of the T.V. show subscription.

$\$15$

- d. Write an equation to represent the graph of the T.V. show subscription where C is the total cost of the subscription and m is the number of months.

$y = 15x$

Unit 3 Proportional Relationships Review

Name: _____ hour: _____

2. A contractor must haul a large amount of dirt to a work site. She collected information from two hauling companies.

EZ Excavation gives its prices in a table:

dirt (cubic yards)	cost (dollars)
8	196
20	490
26	637

12 yd
6 yd

Happy Hauling Service gives its prices in the equation $y=25x$ where x is the amount of dirt in cubic yards and y is the cost in dollars.

$\frac{\$294}{12 \text{ yd}} = 24.5$ $\frac{\$147}{6 \text{ yd}} = 24.5$
 $\$24.50 \text{ per yd}$

A. Write an equation (similar to Happy Hauling Service's) to describe EZ Excavation's rate where y is the cost in dollars and x is the amount of dirt in cubic yards.

$$y = 24.5x$$

B. How much would each hauling company charge to haul 45 cubic yards of dirt? Explain or show your reasoning.

EZ $24.5 \times 45 = \$1102.50$ HH $45 \times 25 = \$1125$

C. Calculate the rate of change for each relationship. What do they mean for each company?

EZ / 24.5 HH / 25 \$ per yd³

3. Students are selling cookies for a bake sale fundraiser. They collect \$18 for every 12 cookies they sell.

a. What is the cost of each cookie? $\frac{\$18}{12} = \1.50 per cookie

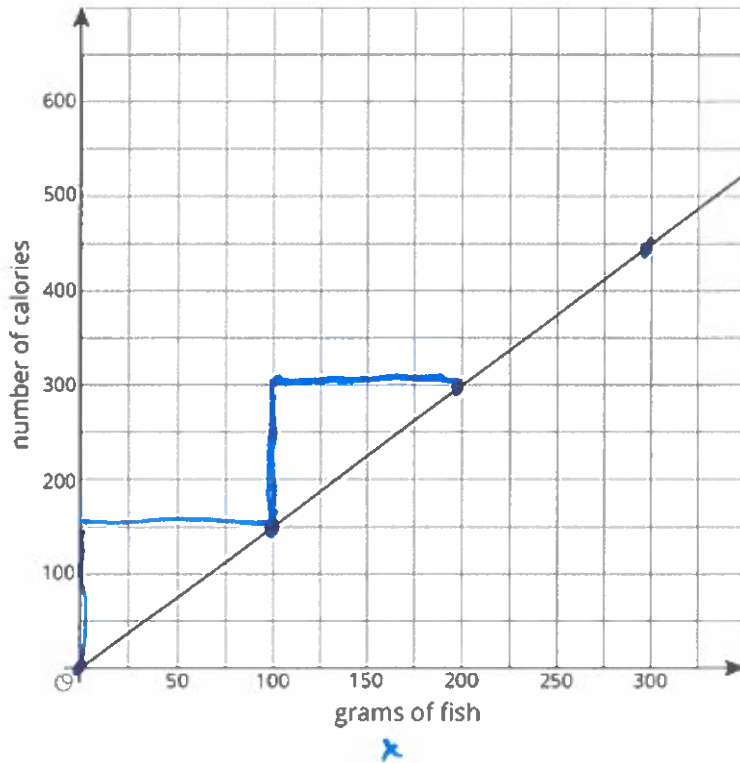
b. How much money would they make for selling 50 cookies? $1.50 \times 50 = \$75$

c. How many cookies will they need to sell to make \$450? $\frac{\$450}{1.5} = 300 \text{ cookies}$

Unit 3 Proportional Relationships Review

Name: _____ hour: _____

4. The graph shows the proportional relationship between the calories and grams of fish.



$$\frac{150}{100} = \frac{15}{10} = \frac{3}{2}$$

↓
1.5

a. Write an equation to represent this situation.

$$y = 1.5x \quad \text{OR} \quad y = \frac{3}{2}x$$

b. Complete the following table regarding this situation. Use the graph or equation to answer.

Grams of Fish x	300 g	$\frac{600}{1.5} = 400$	1000 g	$\frac{2400}{1.5} = 1600$
Number of Calories y	$1.5 \times 300 = 450$	600 calories	$1.5 \times 1000 = 1500$	2400 calories

5. Andrew and Clare are planting flowers. Andrew records that he can plant 600 flowers in 30 minutes. Clare writes the equation $y = 22x$, where y is the number of flowers planted and x is the number of minutes, to describe her rate.

$$M = \frac{\Delta y}{\Delta x} = \frac{\Delta \text{flowers}}{\Delta \text{min}}$$

Write an equation (similar to Clare's) to describe Andrew's planting rate where y is the number of flowers planted and x is the number of minutes.

$$\frac{600}{30} = 20$$

$$\boxed{y = 20x}$$