Proportional Relationships Practice Name:_____

1. The table below represents the relationship between the cost (y) for buying slices of pizza (x).

Slices of Pizza (x)	0	4	8	12
Cost (y)	0	6	12	18

$\frac{\Delta y}{\Delta x}$

a. What is the slope of this situation? What does it mean?

$\frac{\$6}{4 \text{ slices}} \rightarrow \frac{\$3}{2 \text{ slices}} \rightarrow \$1.50$ per slice

b. What would the cost be for 10 slices of pizza?

$1.50 \cdot 10 = \$15$

c. How many slices would you have bought if you spent $30?

$\$30 / 1.50 = 20$ slices

d. Write an equation to represent this situation.

$y = 1.5x$ or $y = \frac{3}{2}x$

2. Jeff and Alisha are planting flowers for a botanical garden. Jeff can plant 3,510 flowers in 45 minutes. Alisha uses the equation y = 74x to represent how many flowers, y, she plants in x minutes.

$\frac{3510}{45} = 78$

a. Write an equation similar to Alisha's to represent Jeff's planting rate where y is the number of flowers he plants and x is the minutes.

$y = 78x$

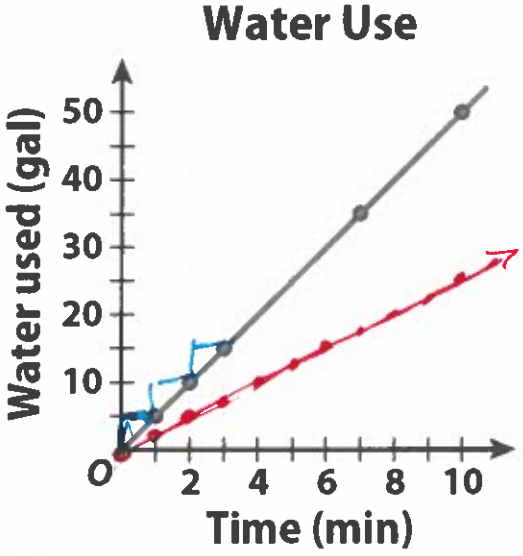
b. How many flowers can they plant in 90 minutes?

Jeff: $78 \cdot 90 = 7{,}020$ Alisha: $74 \cdot 90 = 6{,}660$

c. How long will it take them to plant 10,000 flowers?

Jeff: $\frac{10{,}000}{78} = 129$ Alisha: $\frac{10{,}000}{74} = 136$

3. The graph represents the amount of water used over time. Use the graph to answer questions a through e.



a. How fast is the water being used?

slope

$\frac{5}{1}$ → 5 gal every minute

b. Write an equation for the line.

$y = 5x$

$y = 2.5x$

$\frac{2.5 \cdot 10}{1 \cdot 10} = \frac{25}{10}$

c. Complete the following table based on the above situation.

Time (Min.)	5 min.	$60/5 = 12$	60 min.	$100/5 = 20$
Water Used (gal.)	$5 \cdot 5 = 25$	60 gal.	$5 \cdot 60 = 300$	100 gal.

$\frac{2.5 \cdot 2}{1 \cdot 2} = \frac{5}{2}$

d. In the winter, the rate of the water used was reduced by half. What is the new speed?

2.5

e. Write an equation to represent the speed after the reduction and draw a line on the graph to represent the speed reduction.

$y = 2.5x$

4. Students are selling raffle tickets for a school fundraiser. They collect $45 for every 20 raffle tickets they sell.

$\frac{\$45}{20} = \$2.25$ per ticket

a. How much money would they make for selling 55 tickets?

$2.25 \cdot 55 = \$123.75$

b. How many tickets will they need to sell to make $1170?

$1170 / 2.25 = 520$ tickets