

Find the unit rate. Round to the nearest hundredths place if necessary and label.

1. If it costs \$50 to fill a 20 gallon tank, what is the price per gallon?

$\$2.50$  per gallon or  $\frac{\$2.50}{1 \text{ gallon}}$

2. If a car goes 400 miles in 5 hours, find the average speed (miles per hour).

80 mph  $\frac{80 \text{ miles}}{1 \text{ hour}}$

3. If my car can go 200 miles on 20 gallons of gas, find the number of miles per gallon?

10 mpg or  $\frac{10 \text{ miles}}{1 \text{ gallon}}$

4. 477 students for 9 classrooms

53 students for 1 classroom

5. \$1.68 for 3 pounds

$\$0.56$  for 1 pounds.

6. \$425 for 17 tickets

$\$25$  per 1 ticket

7. Kevin traveled 620 miles in 9 hours. What is the average speed in miles per hour?

68.8 mph

8. Which size of yogurt shown in the table has the lowest unit price?

Size (oz)	Cost (\$)
6	0.89
8	1.04
10	1.69
32	4.79

the 8oz container has the lowest unit price of  $\$0.13$  per oz.

9. Which size of hand sanitizer shown in the table has the lowest unit price?

Size	Volume (fl oz)	Price
Trial	6	\$0.78
Regular	12	\$1.20
Family	28	\$2.24
Economy	40	\$3.60

The 28 oz bottle is  $\$0.08$  per ounce.

For problems 10 and 11 state whether or not each set of ratios is a proportion.

For problems 12 and 13 solve for the variable to make the statement true.

10.  $\frac{4}{9}, \frac{3}{8}$

NO.

11.  $\frac{12}{48}, \frac{8}{32}$

Yes!

12.  $\frac{13}{28} = \frac{25}{n}$

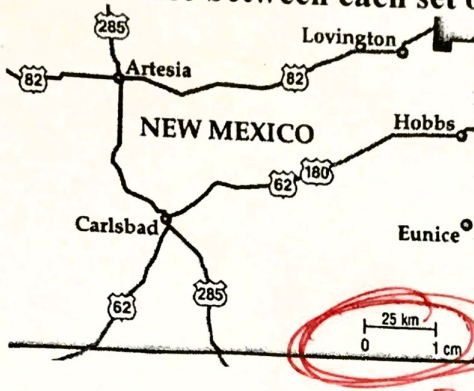
$n \approx 53.8$

13.  $\frac{h}{18} = \frac{7}{50}$

$h = 2.52$



For problems 14 - 17, write and solve proportions using the scale provided on the map to find the actual distance between each set of cities.



14. Carlsbad and Artesia  
Distance on map is 2 cm

Proportion:  $\frac{1 \text{ cm}}{25 \text{ km}} = \frac{2 \text{ cm}}{x \text{ km}}$

Answer:  $x = 50 \text{ km}$

15. Hobbs and Eunice  
Distance on map is 1 cm

Proportion:  $\frac{1 \text{ cm}}{25 \text{ km}} = \frac{1 \text{ cm}}{x \text{ km}}$

Answer:

16. Artesia and Eunice  
Distance on map is  $4\frac{1}{2}$  cm

Proportion:  $\frac{1 \text{ cm}}{25 \text{ km}} = \frac{4.5 \text{ cm}}{x \text{ km}}$

Answer:  $x = 112.5 \text{ km}$

17. Lovington and Carlsbad  
Distance on map is  $3\frac{1}{2}$  cm

Proportion:  $\frac{1 \text{ cm}}{25 \text{ km}} = \frac{3.5 \text{ cm}}{x \text{ km}}$

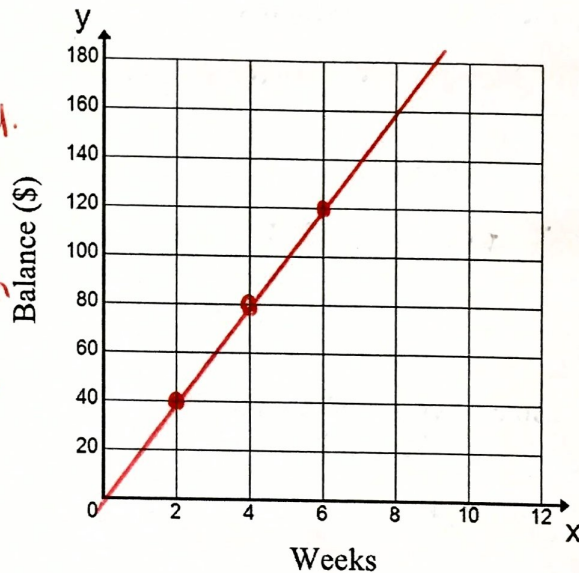
Answer:  $x = 87.5 \text{ km}$

For problems 18 and 19, determine whether the relationship between the two quantities shown in each table are proportional by graphing on the coordinate plane. Explain your reasoning.

18.

Savings Account	
Week	Account Balance (\$)
2	40
4	80
6	120

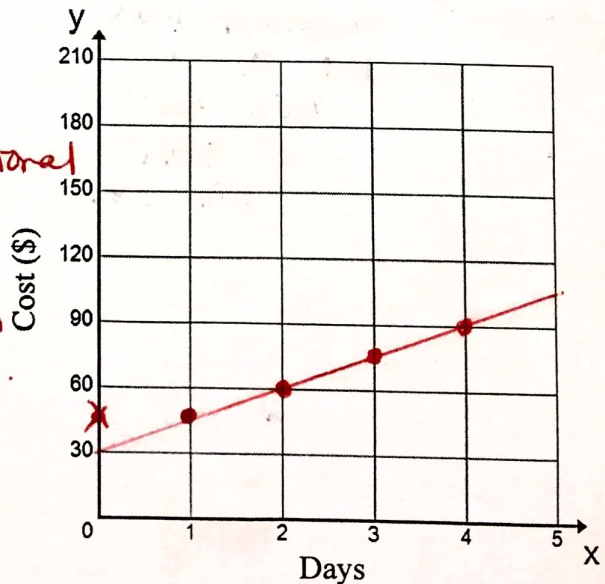
Yes, it is Proportional.  
It is a straight line going through (0,0) the origin.



19.

Car Rental Rates	
# of Days	Cost (\$)
1	45
2	60
3	75
4	90

NO, it is NOT proportional because it DOES NOT pass through the origin.



Determine if the situation represents a proportional relationship. Then, explain your reasoning.

20. The table shows the amount Maggie earns each hour she babysits.

Time (h)	2	3	4
Earnings (\$)	12	18	24

YES! Because every  $\frac{y}{x} = 6$ .

21. The table shows the cost of shampoo at Walmart.

# of Bottles	7	8	9
Cost (\$)	2.95	4.50	6.05

NO. Because every  $\frac{y}{x} =$  something different.

22. Myra can fill 28 glasses of water with 4 pitchers. How many glasses can she fill with 14 pitchers?



Proportion:  $\frac{28 \text{ glasses}}{4 \text{ pitchers}} = \frac{x \text{ glasses}}{14 \text{ pitchers}}$

Answer: 98 glasses

For problems 23 and 24, check each table to see if it has a constant rate of change. If so, please state the constant rate of change.

23.

Time (hr)	Distance (mi)
4	28
5	35
6	42
7	49

+1 ↗ +7 ↘  
+1 ↗ +7 ↘  
+1 ↗ +7 ↘

YES! It is  $\frac{7 \text{ mi}}{1 \text{ hr}}$

24.

Pounds (lbs)	1	2	4	8
Cost (\$)	0.50	1.00	2.00	4.00

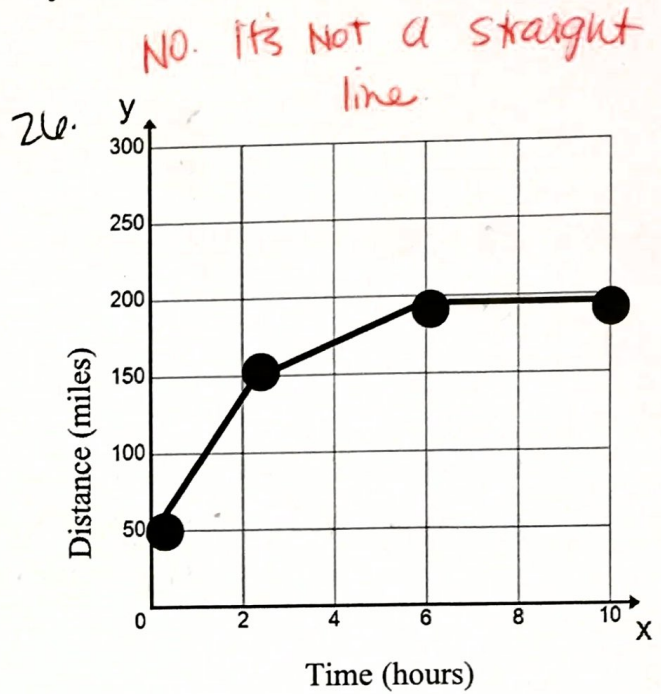
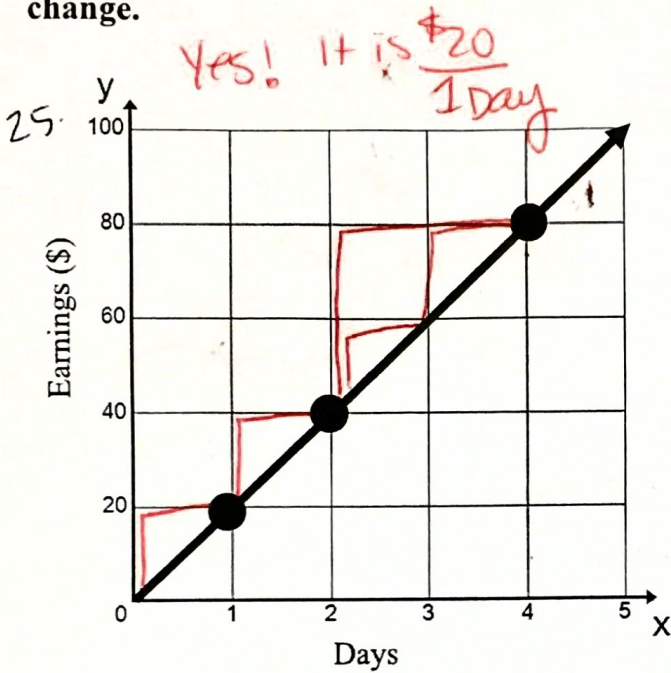
+1 ↘ +2 ↘ +4 ↘  
↙ +0.50 ↙ ↙ +1.00 ↙ ↙ +2.00 ↙

YES! It is  $\frac{\$0.50}{1 \text{ pound}}$ .

Each additional pound costs \$0.50 more.



For problems 25 and 26 do the following graphs show a constant rate of change? If so, please state the constant rate of change. If not, explain how you know it doesn't have a constant rate of change.



For problems 27 – 30, do the following tables and graphs represent proportional relationships? If so, write the equation.

27. *x y*

# of pizzas	Cost (\$)
3	18.75
5	31.25
7	43.75
9	56.25

*YES! Every  $\frac{y}{x} = 6.25$*   
*Equation:  $y = 6.25x$*

28.

Days (x)	Hours Worked (y)
2	30
4	50
6	70
8	90

*NO!  $\frac{30}{2} = 15$  But  $\frac{50}{4} \neq 15$ .*

