

Lesson 20: Comparison Shopping—Unit Price and Related Measurement Conversions

Classwork

An activity will be completed in order to gain confidence in comparing rates on tables, graphs, and equations.

Example 1: Notes from Exit Ticket

Take notes from the discussion in the space provided below.

Notes: rate - compares two items, equivalent to unit rate

unit rate: smallest ratio because its in simplest form, which brings it down to 1 unit

Exploratory Challenge

1. Mallory is on a budget and wants to determine which cereal is a better buy. A 10-ounce box of cereal costs \$2.79, and a 13-ounce box of the same cereal costs \$3.99.
 - a. Which box of cereal should Mallory buy?

$$\frac{2.79}{10} = \$0.28 \text{ per oz}$$

$$\frac{3.99}{13} = \$0.31 \text{ per oz}$$

Mallory should buy the 10 oz box because the unit rate is \$0.28 per ounce and the 13 oz box has a unit rate of \$0.31 per oz.
 - b. What is the difference between the two unit prices?

It is a \$0.03 difference in cereal box \$ per oz.

2. Vivian wants to buy some watermelon. Kingston's Market has 10-pound watermelons for \$3.90, but the Farmer's Market has 12-pound watermelons for \$4.44.

a. Which market has the best price for watermelon?

Farmer's Market has the best price for watermelon @ \$.37/lb

$$\frac{3.90}{10} = \$.39/\text{lb}$$

Kingston

$$\frac{4.44}{12} = \$.37/\text{lb}$$

FM

b. What is the difference between the two unit prices?

Diff. between two prices is \$.02/lb

3. Mitch needs to purchase soft drinks for a staff party. He is trying to figure out if it is cheaper to buy the 12-pack of soda or the 20-pack of soda. The 12-pack of soda costs \$3.99, and the 20-pack of soda costs \$5.48.

a. Which pack should Mitch choose?

20 pack of soda is a better deal @ \$.27/can

$$\frac{3.99}{12} = \$.33/\text{can}$$

$$\frac{5.48}{20} = \$.27/\text{can}$$

per can

b. What is the difference between the costs of one can of soda between the two packs?

The difference in cost between the 12 pack & 20 pack of cans is \$.06/can.

4. Mr. Steiner needs to purchase 60 AA batteries. A nearby store sells a 20-pack of AA batteries for \$12.49 and a 12-pack of the same batteries for \$7.20.

a. Would it be less expensive for Mr. Steiner to purchase the batteries in 20-packs or 12-packs?

It would be less expensive for Mr. Steiner to purchase 20 pack batteries @ \$.60/battery. $\frac{12.49}{20} = \$.62/\text{battery}$

b. What is the difference between the costs of one battery?

The difference between the cost, battery in the 12 pk and 20 pk is \$.02 per battery

5. The table below shows the amount of calories Mike burns as he runs.

Number of Miles Ran	3	6	9	12
Number of Calories Burned	360	720	1080	1,440

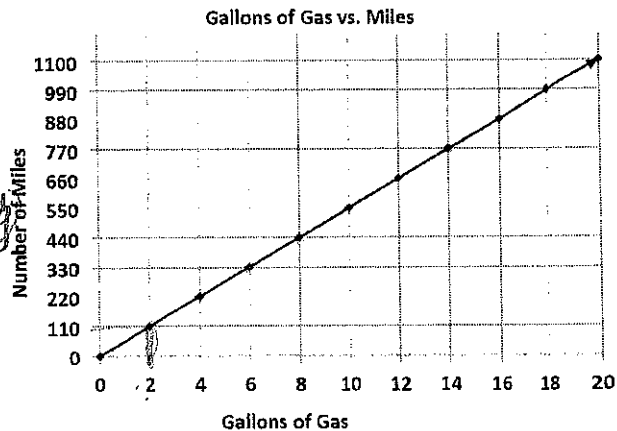
Fill in the missing part of the table.

6. Emilio wants to buy a new motorcycle. He wants to compare the gas efficiency for each motorcycle before he makes a purchase. The dealerships presented the data below.

Sports Motorcycle:

Number of Gallons of Gas	5	10	15	20
Number of Miles	287.5	575	862.5	1,150

Leisure Motorcycle:



$\frac{110}{2}$

55 mpg

*miles
gallon*

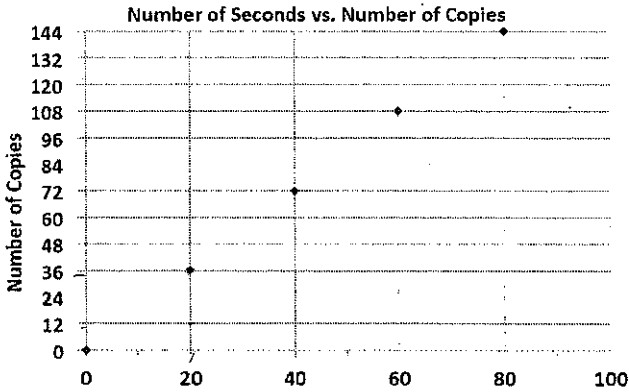
$\frac{287.5}{5} = 57.5 \text{ mpg}$

Which motorcycle is more gas efficient and by how much?

Sports motorcycle has better gas efficiency @ 57.5 mpg w/ a difference of 2.5 mpg more than the Leisure Motorcycle

7. Milton Middle School is planning to purchase a new copy machine. The principal has narrowed the choice to two models: SuperFast Deluxe and Quick Copies. He plans to purchase the machine that copies at the fastest rate. Use the information below to determine which copier the principal should choose.

SuperFast Deluxe:



Quick Copies:

$c = 1.5t$

(where t represents the amount of time in seconds and c represents the number of copies)

1.5 copies/sec.

Handwritten calculation: $36 \div 20 = 1.8$

Super Fast Deluxe
1.8 copies/sec.

The principal should choose the SuperFast Deluxe copier because it produces 1.8 copies/sec whereas, Quick Copies only produces 1.5 cop/sec.

8. Elijah and Sean are participating in a walk-a-thon. Each student wants to calculate how much money he would make from his sponsors at different points of the walk-a-thon. Use the information in the tables below to determine which student would earn more money if they both walked the same distance. How much more money would that student earn per mile?

Elijah's Sponsor Plan:

Number of Miles Walked	7	14	21	28
Money Earned in Dollars	35	70	105	140

Handwritten calculation: $7 \div 7 = 1$ mile, $35 \div 7 = 5$ \$

Sean's Sponsor Plan:

Number of Miles Walked	6	12	18	24
Money Earned in Dollars	33	66	99	132

Handwritten calculation: $6 \div 3 = 2$, $33 \div 3 = 11$, $2 \div 2 = 1$, $11 \div 2 = 5.50$

Sean would earn more \$ because he earns \$5.50 per mile whereas, Elijah only earns \$5.00/mi. Sean earns \$.50/mi more than Elijah.

9. Gerson is going to buy a new computer to use for his new job and also to download movies. He has to decide between two different computers. How many more kilobytes does the faster computer download in one second?

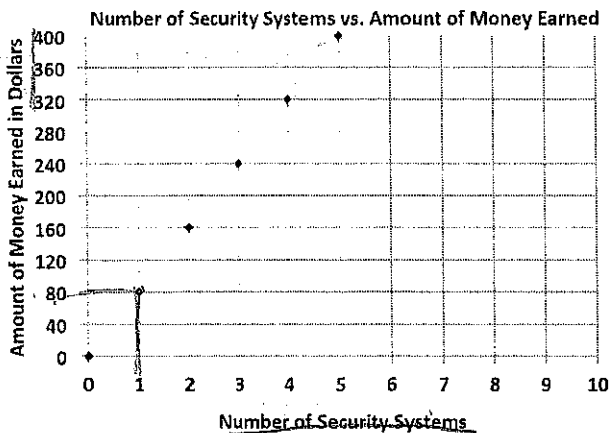
Choice 1: The rate of download is represented by the equation $k = 153t$, where t represents the amount of time in seconds and k represents the number of kilobytes.

Choice 2: The rate of download is represented by the equation $k = 150t$, where t represents the amount of time in seconds and k represents the number of kilobytes.

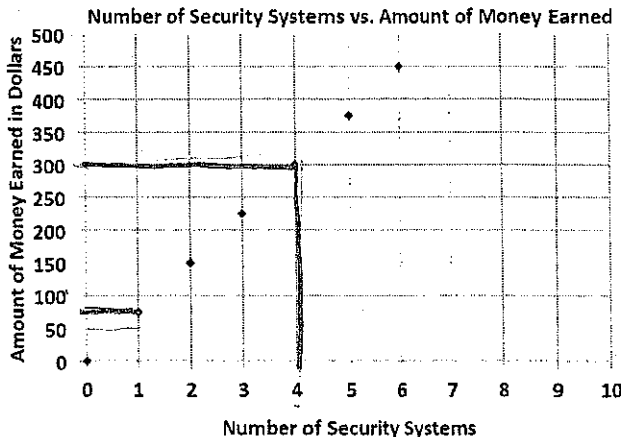
$K = 153(1)$ $K = 153/\text{sec} -$
 $K = 150(1)$ $K = 150/\text{sec}$
 Choice one downloads 3 more kilobytes/sec than choice 2.

10. Zyearaye is trying to decide which security system company he will make more money working for. Use the graphs below that show Zyearaye's potential commission rate to determine which company will pay Zyearaye more commission. How much more commission would Zyearaye earn by choosing the company with the better rate?

Superior Security:



Top Notch Security:



* \$80 per Security System $\frac{\$300}{4} = \75 per Security System
 Zyearaye will earn more commission w/ Superior Sec. @ \$80/system vs. Top Notch @ \$75/system. This is \$5 more per system.

11. Emilia and Miranda are sisters, and their mother just signed them up for a new cell phone plan because they send too many text messages. Using the information below, determine which sister sends the most text messages. How many more text messages does this sister send per week?

Emilia:

Number of Weeks	3	6	9	12
Number of Text Messages	1,200	2,400	3,600	4,800

Miranda: $m = 410w$, where w represents the number of weeks and m represents the number of text messages.

$\frac{1200}{3} = 400 \text{ msg/wk}$

$M = 410/w$

Miranda sends ten more message a week @ 410/w than Emilia's 400 msg/wk