-1

1. Brandon enters bike races. He bikes $8\frac{1}{2}$ miles every $\frac{1}{2}$ hour. Complete the table to find how far Brandon bikes for each time interval.

Distance (mi)	$8\frac{1}{2}$	17	$25\frac{1}{2}$	34	$42\frac{1}{2}$
Time (h)	$\frac{1}{2}$	1	$1\frac{1}{2}$	2	$2\frac{1}{2}$

$$\left(\frac{\frac{2}{3}}{\frac{4}{5}}\right) = \frac{10}{12} = \frac{5}{6}$$

Simplify each complex fraction.

2. $\dfrac{\frac{3}{4}}{\frac{2}{3}} = \frac{3}{4} \cdot \frac{3}{2} = \frac{9}{8} = 1\frac{1}{8}$

3. $\left(\dfrac{\frac{1}{2}}{\frac{5}{8}}\right) = \frac{1}{2} \cdot \frac{8}{5} = \frac{4}{5}$

4. $\left(\dfrac{\frac{4}{5}}{\frac{2}{3}}\right) = \frac{12}{10} = \frac{6}{5} = 1\frac{1}{5}$

5. $\left(\dfrac{\frac{6}{7}}{\frac{1}{7}}\right) = \frac{42}{7} = 6$

Find each unit rate.

6. Julio walks $3\frac{1}{2}$ miles in $1\frac{1}{4}$ hours.

$2\frac{4}{5}$ miles per hr

7. Kenny reads $\frac{5}{8}$ page in $\frac{2}{3}$ minute.

$\frac{5}{8} \cdot \frac{3}{2} = \frac{15}{16}$ page minute

8. Marcia uses $\frac{3}{4}$ cup sugar when she halves the recipe.

$1\frac{1}{2}$ cups per whole recipe

9. Sandra tiles $\frac{5}{4}$ square yards in $\frac{1}{3}$ hours.

$\frac{5}{4} \cdot \frac{3}{1} = \frac{15}{4} = 3\frac{3}{4}$ yd^2 per hr.

The information for two cell phone companies is given.

10. What is the unit rate for On Call?

$2.85 per hour

On Call	Talk Time
3.5 hours: $10	$\frac{1}{2}$ hour: $1.25

11. What is the unit rate for Talk Time?

$1.25 \cdot 2 = $2.50 hour

12. Determine which of the companies offers the best deal. Explain your answer.

TALK TIME HAS A BETTER DEAL BY $0.35

13. What if? Another company offers a rate of $0.05 per minute.

a. How would you find the unit rate per hour?

60 minutes = 1 hr $0.05(60) =$

$$\begin{array}{r} 60 \\ 0.05 \\ \hline 300 \\ 000 \\ \hline 3.00 \end{array}$$

$3 per hr.

b. Is this a better deal than ~~On Call~~ or Talk Time?
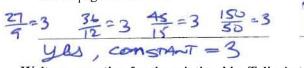
TALK TIME PER HOUR

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-2 Tell whether the relationship is a proportional relationship. If so, give the constant of proportionality.

1.

Number of Minutes	3	4	5	6	7
Number of Seconds	180	240	300	360	420

$\frac{180}{3} = 60$ $\frac{240}{4} = 60$ $\frac{300}{5} = 60$

2.

Time (h)	1	2	3	4	5
Biking Distance (mi)	12	26	36	44	50

NO

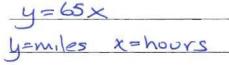$\frac{12}{1} = 12$ $\frac{26}{2} = 13$ $\frac{36}{3} = 12$ $\frac{44}{4} = 11$ $\frac{50}{5} = 10$

3. Naomi reads 9 pages in 27 minutes, 12 pages in 36 minutes, 15 pages in 45 minutes, and 50 pages in 150 minutes.

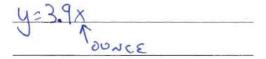$\frac{27}{9} = 3$ $\frac{36}{12} = 3$ $\frac{45}{15} = 3$ $\frac{150}{50} = 3$

yes, constant = 3

4. A scuba diver descends at a constant rate of 8 feet per minute.

8   yes

Write an equation for the relationship. Tell what the variables represent.

5. It takes Li 1 hour to drive 65 miles, 2 hours to drive 130 miles, and 3 hours to drive 195 miles.

$y = 65x$

$y = miles$ $x = hours$

6. There are 3.9 milligrams of calcium in each ounce of cooked chicken.

$y = 3.9x$

ounce

7.

Gallons of Gasoline	3	4	5	6
Total Cost ($)	9.45	12.60	15.75	18.90

X   Y

$\frac{9.45}{3} = 3.15$ $\frac{12.60}{4} = 3.15$ $\frac{15.75}{5} = 3.15$

$\frac{18.90}{6} = 3.15$ $y = 3.15x$

8.

Cups of Batter	2	6	8	12
Number of Muffins	5	15	20	30

muffins

$\frac{5}{2} = 2.5$ $\frac{15}{6} = 2.5$ $\frac{20}{8} = 2.5$

$y = 2.5x$

Information on three car rental companies is given.

Rent-All			
Days	3	4	5	6
Total Cost ($)	55.50	74.00	92.50	111.00

$\frac{55.50 \$}{3} = 18.50$

A-1 Rentals	Car Town
The cost y of renting a car for x days is given by $y = 22.5x$.	The cost of renting a car from us is just $19.25 per day!

9. Write an equation that gives the cost y of renting a car for x days from Rent-All.

$y = 18.50x$