

Ratios & Rates DAY ONE WS

Express each ratio as a fraction in simplest form.

- | | |
|--|---|
| 1) 18 miles out of 20 miles
<u>18:20</u> $\frac{18}{20} \div 2$ $\boxed{\frac{9}{10}}$ | 5) 21 points out of 30 points
<u>21:30</u> $\frac{21}{30} \div 3$ $\boxed{\frac{7}{10}}$ |
| 2) 16 red bikes out of 20 bikes
<u>16:20</u> $\frac{16}{20} \div 4$ $\boxed{\frac{4}{5}}$ | 6) 6 nickels to 249 nickels
<u>6:249</u> $\frac{6}{249} \div 3$ $\boxed{\frac{2}{83}}$ |
| 3) 18 blue cars out of 24 cars
<u>18:24</u> $\frac{18}{24} \div 6$ $\boxed{\frac{3}{4}}$ | 7) 8 cups to 48 cups
<u>8:48</u> $\frac{8}{48} \div 8$ $\boxed{\frac{1}{6}}$ |
| 4) 7 pints to 21 pints
<u>7:21</u> $\frac{7}{21} \div 7$ $\boxed{\frac{1}{3}}$ | 8) 5 feet out of 40 feet
<u>5:40</u> $\frac{5}{40} \div 5$ $\boxed{\frac{1}{8}}$ |

Express each phrase as a rate and unit rate. (Round your answer to the nearest hundredth.)

- | | Rate | Unit Rate |
|--------------------------------------|--------------|---------------------------------|
| 1) 4 calculators cost \$155.00 | <u>155:4</u> | <u>\$38.75 : 1 calc.</u> |
| 2) 95 miles on 8 gallons of gas | <u>95:8</u> | <u>11.88mi : 1 gal</u> |
| 3) 20 dollars for 7 books | <u>20:7</u> | <u>\$2.86 : 1 book</u> |
| 4) 13 chocolate bars cost 21 dollars | <u>21:13</u> | <u>\$1.62 : 1 chocolate bar</u> |
| 5) 6 dollars for 2 cans of tuna | <u>6:2</u> | <u>\$3 : 1 can of tuna</u> |

Solve the ratio and rate word problems. Be sure to show work and include proper units.

- 1) An ice cream factory makes 350 quarts of ice cream in 2 hours. How many quarts could be made in 12 hours?

$$\frac{\text{quarts}}{\text{hours}} = \frac{350}{2} = \frac{x}{12}$$

$$4200 = 2x$$

$$x = 2100$$

$\boxed{2100 \text{ quarts}}$

- 2) You can buy 5 cans of green beans at the Village Market for \$3.10. You can buy 10 of the same cans of beans at Sam's Club for \$6.10. Which place is the better buy?

$$\frac{\$}{\#} = \frac{3.10}{5} = \frac{6.10}{10}$$

\$0.62 \$0.61

Sam's
club

- 3) A jet travels 590 miles in 5 hours. At this rate, how far could the jet fly in 15 hours? What is the rate of speed of the jet?

$d = r \cdot t$

$$590 = r(5) \quad \frac{\text{miles}}{\text{hours}} = \frac{590}{5} = \frac{x}{15} \Rightarrow 5x = 8850$$

$$1770 = r(15) \quad x = 1770 \text{ miles}$$

118 mph

- 4) A ferris wheel can accommodate 50 people in 15 minutes. How many people could ride the ferris wheel in 4 hours? What was that rate per hour?

$$\frac{\text{people}}{\text{min}} = \frac{50}{15} = \frac{x}{240}$$

800 people

$$\frac{\#}{\text{hr}} = \frac{50}{\frac{1}{4}} = 200 \text{ P/h}$$

$4 \text{ hr} = \frac{1 \text{ hr}}{x \text{ mins}}$
 $60 \cdot 4 \cdot 4 = 240$
 $4 \text{ hrs} = 240 \text{ mins}$

- 5) The bakers at Healthy Bakery can make 190 bagels in 5 hours. How many bagels can they bake in 21 hours? What was that rate per hour?

$$\frac{\# \text{ bagels}}{\text{hr}} = \frac{190}{5} = \frac{x}{21} \Rightarrow 5x = 3990$$

$x = 798$

798 bagels

38 bagels per
hour

- 6) Gas mileage is the number of miles you can drive on a gallon of gasoline. A test of a new car results in 410 miles on 20 gallons on gas. How far could you drive on 65 gallons of gas? What is the car's gas mileage?

$$\frac{\text{miles}}{\# \text{ gal}} = \frac{410}{20} = \frac{x}{65} \Rightarrow 20x = 26650$$

$x = 1332.5$

1,332.5 miles

20.5 miles per
gallon

- 7) You can buy 3 apples at the Quick Market for \$1.17. You can buy 5 of the same apples at Stop and Save for \$1.25. Which place is the better buy?

$$\frac{\$}{\# \text{ apples}} = \frac{1.17}{3} = \frac{1.25}{5}$$

$\$0.39 > \0.25

Stop & Save
is cheaper
by \$0.14.