

Gr 7  
Ch 5

Name Key Date Due \_\_\_\_\_  
 7th Grade MATH STUDY GUIDE Ch 5 Part I Ratios and Rates  
 Complete the work inside the boxes under the problem. Circle your answer.

1. Express this ratio as a fraction in simplest form.

\$32 for 10 tickets

$$\frac{\$32}{10 \text{ tickets}} \div \frac{2}{2} =$$

$$\frac{\$16}{5 \text{ tickets}} \text{ or } \left( \frac{16}{5} \right)$$

2. Express this ratio as a fraction in simplest form.

450 miles in 6 hours

$$\frac{450 \text{ mi}}{6 \text{ hr}} \div \frac{6}{6} =$$

$$\frac{75 \text{ mi}}{1 \text{ hr}} \text{ or } \left( \frac{75}{1} \right)$$

3. Express this ratio as a fraction in simplest form. \*\*Remember, this is measurement.\*\*

24 inches to 5 feet

There are 12 inches in 1 foot, so 5 ft. is the same as 5x12, or 60 inches.

So our ratio is  
 $\frac{24 \text{ in.}}{60 \text{ in.}}$   
 or  $\frac{24}{60} \div \frac{12}{12} = \left( \frac{2}{5} \right)$

4. Find unit rate. How many dogs per shelter?  
 → shelter in denom.

12 shelters have 1032 dogs

$$\frac{1032 \text{ dogs}}{12 \text{ shelters}} = 12 \overline{) 1032}$$

$$\begin{array}{r} 86 \\ 12 \overline{) 1032} \\ \underline{96} \phantom{0} \\ 72 \\ \underline{72} \\ 0 \end{array}$$

$$\frac{86 \text{ dogs}}{1 \text{ Shelter}}$$

↑ must have 1 in denominator for unit rate.

5. Simplify this complex fraction.

$$\frac{\frac{1}{2}}{\frac{1}{6}} = 3$$

Fraction bar is a division sign

$$\frac{1}{2} \div \frac{1}{6} =$$

$$\frac{1}{2} \times \frac{6}{1} = \frac{6}{2} = 3$$

6. Simplify this complex fraction.

$$\frac{\frac{2}{5}}{\frac{8}{1}} = \frac{1}{20}$$

$$\frac{2}{5} \div 8 = \frac{2}{5} \div \frac{8}{1} = \frac{2}{5} \times \frac{1}{8} = \frac{2}{40} = \frac{1}{20}$$

7. Write the equivalent fraction for this percent.

$$45.5\% = \frac{91}{200}$$

↑ percent means per hundred

$$\frac{45.5}{100} = \frac{455}{1000} \div \frac{5}{5} = \frac{91}{200}$$

8. Ava drove 210 miles in 3.5 hours. At this same rate, how far will she drive in 6 hours?

Find unit rate first (miles for one hour) then take that x6.

$$\frac{210 \text{ mi}}{3.5 \text{ hr}} \rightarrow \frac{60}{1} \text{ mi/hr}$$

$$= \frac{210 \text{ mi}}{3.5 \text{ hr}} \times \frac{6}{6} = \frac{1260 \text{ mi}}{21 \text{ hr}} = \frac{60 \text{ mi}}{1 \text{ hr}}$$

$$\frac{60 \text{ mi}}{1 \text{ hr}} \times 6 = 360 \text{ mi}$$

9. Which is less expensive per ounce, 16 ounces of Colby cheese for \$7.75 or 24 ounces of American cheese for \$10.25?

Find unit rate of each cheese, and see which is cheaper per ounce

$$\frac{7.75}{16} = 0.48 \text{ or } \frac{10.25}{24} = 0.42$$

\* You can stop after 2 places. American is cheaper

10. A vehicle traveled  $52 \frac{1}{2}$  miles and used  $2 \frac{1}{2}$  gallons of gasoline. What was the rate of fuel use in miles per gallon?

gallon is in the denominator

$$\frac{52 \frac{1}{2} \text{ mi}}{2 \frac{1}{2} \text{ gal}} = \frac{105}{2} \div \frac{5}{2} = \frac{105}{2} \times \frac{2}{5} = \frac{21 \text{ mi}}{1 \text{ gal}}$$

Divide numerator by denominator!

change decimal to mixed number

\* Use chart. Cancel out units \*

\* Put given unit over a 1.

<p>11. Complete each conversion. Round to the nearest hundredth.</p> <p>19 in. = <sup>see below</sup> <u>          </u> cm</p> $\frac{19 \text{ in.}}{1} \times \frac{2.54 \text{ cm}}{1 \text{ in.}} = \frac{48.26 \text{ cm}}{1}$ <p>OR</p> $\frac{19 \text{ in.}}{1} \times \frac{1 \text{ cm}}{0.394 \text{ in.}} = \frac{48.22 \text{ cm}}{1}$	<p>12. Complete each conversion. Round to the nearest hundredth.</p> <p>9 qt = <u>8.51</u> L</p> $\frac{9 \text{ qt.}}{1} \times \frac{0.946 \text{ L}}{1 \text{ qt.}} = \frac{8.51 \text{ L}}{1}$ <p>OR</p> $\frac{9 \text{ qt.}}{1} \times \frac{1 \text{ L}}{1.057 \text{ qt.}} = \frac{8.51 \text{ L}}{1}$	<p>13. Complete each conversion. Round to the nearest hundredth.</p> <p>6 mi = <u>31,680</u> ft</p> $\frac{6 \text{ mi}}{1} \times \frac{5280 \text{ ft}}{1 \text{ mi}} = \frac{31,680 \text{ ft.}}{1}$
<p>14. Complete each conversion. Round to the nearest hundredth.</p> <p>23 lb = <u>10.44</u> kg</p> $\frac{23 \text{ lb}}{1} \times \frac{0.454 \text{ kg}}{1 \text{ lb}} = \frac{10.44 \text{ kg}}{1}$ <p>OR</p> $\frac{23 \text{ lb}}{1} \times \frac{1 \text{ kg}}{2.203 \text{ lb}} = \frac{10.44 \text{ kg}}{1}$	<p>15. Complete each conversion. Round to the nearest hundredth.</p> <p>20 mi = <sup>see below</sup> <u>          </u> m</p> $\frac{20 \text{ mi}}{1} \times \frac{5280 \text{ ft}}{1 \text{ mi}} \times \frac{0.305 \text{ m}}{1 \text{ ft}} = \frac{32,208 \text{ m}}{1}$ <p>OR</p> $\frac{20 \text{ mi}}{1} \times \frac{1.609 \text{ km}}{1 \text{ mi}} \times \frac{1000 \text{ m}}{1 \text{ km}} = \frac{32,180 \text{ m}}{1}$	<p>16. Complete each conversion. Round to the nearest hundredth.</p> <p>650 oz = <sup>see below</sup> <u>          </u> kg</p> $\frac{650 \text{ oz}}{1} \times \frac{28,350 \text{ g}}{1 \text{ oz}} \times \frac{1 \text{ kg}}{1000 \text{ g}} = \frac{18,43 \text{ kg}}{1}$ <p>OR</p> $\frac{650 \text{ oz}}{1} \times \frac{1 \text{ g}}{0.035 \text{ oz}} \times \frac{1 \text{ kg}}{1000 \text{ g}} = \frac{18,57 \text{ kg}}{1}$

\* can use either conversion factor from the chart. \*

\* This has multiple ways \*

To use calculator, multiply across numerator and denominator. Write this down. Then divide numerator by denominator to get your decimal answer. Look at the thousandths place (the third place out) to round to the hundredths place.