2.3 Ratios and Rates

ratio - Comparison of 2 numbers

3 forms: 1. word "to" 3 to 5

2. : 3:5

3. fraction $\frac{3}{5}$

equivalent ratios - are just like equivalent fractions

★ reduce

★ must remain a fraction

(NO MIXED NUMBERS or WHOLE NUMBERS)

continued ratios - comparison of 3 or more numbers

Ex: 2:3:5

***ratios must be in the <u>same</u>: <u>UNITS</u>

★ use conversions when necessary

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Examples: Reduce the following ratios.

1. 200 gal to 50 gal

$$\frac{200 \text{ gal}}{50 \text{ gal}} = \frac{4}{1}$$

2. 6.4 oz to 1 lb = 16 oz

$$\frac{6.4 \text{ oz}}{1 \text{ lb}} = \frac{6.4 \text{ oz}}{16 \text{ oz}} = \frac{2}{5}$$

3. 8 hours to 3 days

$$\frac{8 \text{ hrs}}{3 \text{ days}}$$

$$\frac{8 \text{ hrs}}{72 \text{ hrs}} = \frac{1}{9}$$

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rate - Special kind of ratio

↳ the items have <u>different</u> <u>units</u> <u>of</u> <u>measure</u>

★ Convert the answer to a decimal

***Answer as: _____ per _____

Examples: 1. 175 points in 7 basketball games

$$\frac{175 \text{ points}}{7 \text{ games}} = 25 \text{ points per game}$$

2. 5 grams of salt in 100 cm³

$$\frac{5 \text{ g}}{100 \text{ cm}^3} = 0.05 \text{ grams per cm}^3$$

OR

$$\text{g}/\text{cm}^3$$

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1. Find the price per gallon of gas if 8 gallons are $33.20.

$$\frac{\$33.20}{8 \text{ gal}} = \boxed{\$4.15 \text{ per gallon}}$$

2. On a team, the ratio of boys to girls to coaches is 14: 18: 4. What is the ratio of boys to coaches in simplest form?

$$\frac{14}{4} = \boxed{\frac{7}{2}}$$

3. Simplify the following and identify as ratio or rate.

27 inches for 4 feet   1 ft = 12 in

$$\frac{27 \text{ in}}{4 \text{ ft}}$$ ★ ratio

$$\frac{27 \text{ in}}{48 \text{ in}} = \boxed{\frac{9}{16}}$$

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HOMEWORK

Worksheet - HW 2.3 Ratios and Rates

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