# Ratios/Rates/Proportions



### Section 4-1

- 1. In a 40-gallon tank, there are 21 goldfish and 7 tetra fish. Write the ratio of goldfish to tetra fish in simplest form.  $\frac{21 \div 7}{7 \div 7} = \frac{3}{1} + 3 \div 1$
- 2. In a 40-gallon tank, there are 21 goldfish and 7 tetra fish. Write the ratio of tetra fish to the total number of fish.  $\frac{7 \div 7}{20 \div 7} = \frac{1}{4} + \frac{1}{6} + \frac{1}{4} + \frac{1}{1} + \frac{$

A soccer league has 25 6<sup>th</sup>-graders, 30 seventh-graders, and 15 8<sup>th</sup>-graders. Write each ratio in all three forms.

- 3. 7<sup>th</sup>-graders to 8<sup>th</sup>-graders  $30 \div 15 = \frac{2}{15} \div 15 = \frac{2}{15}$ , 2°1, 2 to 1
- 4.  $6^{\text{th}}$ -graders to total students  $\frac{25 \div 5}{70 \div 5} = \frac{5}{14}$ ,  $5 \div 14$ ,  $5 \div 14$ 5.  $7^{\text{th}}$  and  $8^{\text{th}}$ -graders to  $6^{\text{th}}$ -graders
- 30+15 =  $\frac{45 \div 5}{25} = \frac{9}{5}$ , 9 to 5

## Section 4 – 2

- 6. A faucet leaks 400 milliliters of water in 20 minutes. How many milliliters of water does the faucet leak per minute? 400 = 20 = 20 m/per min
- 7. An airliner makes a 3,000-mile flight in 7 hours. What is the airliner's average rate of speed in miles per hour? 3000 = 7 = 428.7 MF per hour
- 8. An after-school job pays \$116.25 for 15 hours of work. How much money does the job pay per hour?  $116.25 \pm 15 = $7.75 \text{ per hour}$

Find each unit rate.

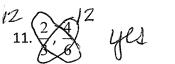
9. \$300,000 for 1,800 square feet 300,000 = 1,800 = \$166.67 per Sq. ft.

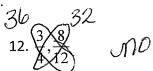
10. \$2,000 in 6 mo

$$2000 \div 6 = $333.33 \text{ per mo.}$$

#### Section 4-3

Determine whether the ratios are proportional.





Find a ratio equivalent to each ratio. Then, use the ratios to write a proportion.

13. 
$$\frac{1}{3} = \frac{2}{6}$$

14. 
$$\frac{9}{21} = \frac{3}{7}$$

15. 
$$\frac{10}{4} = \frac{5}{2}$$

### Section 4-4

Use cross products to solve each proportion.

16. 
$$\frac{6}{10} = \frac{36}{x}$$
  $\frac{36.10 = 6.2}{360 = 6.2}$  17.  $\frac{4}{7} = \frac{5}{p}$   $\frac{7.5 = 4.p}{35 = 4p}$  18.  $\frac{45}{x} = \frac{15}{3}$   $\frac{45.3 = 15.2}{135 = 15.2}$   $\frac{135 = 15.2}{15}$   $\frac{135 = 15.2}{15}$   $\frac{135 = 15.2}{15}$   $\frac{15}{9} = 2$ 

18. 
$$\frac{45}{x} = \frac{15}{3}$$
 45.  $3 = 15. \%$   
13.  $5 = 15. \%$   
 $7 = 15$   
 $9 = \%$ 

Use a proportion to solve the following problem

19. A certain shade of paint is made by mixing 5 parts red paint with 2 parts white paint. To get the correct shade, how many quarts of white paint should be mixed with 8.5 quarts of red paint?

$$\frac{5}{2} = \frac{\chi}{8.5} \qquad \begin{array}{c} 8.5.5 = 2.\chi \\ 42.5 = 2\chi \\ 12.5 = 2\chi \end{array} \qquad \begin{array}{c} 21.25 = \chi \\ 21.25 \text{ gt.} \end{array}$$

20. If you put an object that has a mass of 40 grams on one side of a balance scale, you would have to put about 18 U.S. dimes on the other side to balance the weight. About how many dimes would balance the weight of a 50-gram object?

$$\frac{40}{18} = \frac{50}{\chi}$$
 $\frac{50.18 = 40.\chi}{900 = 4\chi}$ 
 $\frac{40}{14} = \frac{40.\chi}{14}$ 
 $\frac{14}{14} = \frac{14}{14}$