

Gehlhausen/Mundy

Chapter 4 – Sections 1 – 4 – Study Guide

Section 4 – 1

1. In a 40-gallon tank, there are 21 neon tetras and 7 zebra fish. Write the ratio of neon tetras to zebra fish in simplest form.
2. In a 40-gallon tank, there are 21 neon tetras and 7 zebra fish. Write the ratio of zebra fish to the total number of fish.

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

3. 7th-graders to 8th-graders
4. 6th-graders to total students
5. 7th and 8th-graders to 6th-graders

Section 4 – 2

6. A faucet leaks 668 milliliters of water in 8 minutes. How many milliliters of water does the faucet leak per minute?
7. An airliner makes a 2,748-mile flight in 6 hours. What is the airliner's average rate of speed in miles per hour?
8. An after-school job pays \$116.25 for 15 hours of work. How much money does the job pay per hour?

Find each unit rate.

9. \$207,000 for 1,800 square feet
10. \$2,010 in 6 mo

Section 4 – 3

Determine whether the ratios are proportional.

$$11. \frac{2}{3}, \frac{4}{6}$$

$$12. \frac{3}{4}, \frac{8}{12}$$

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

$$13. \frac{1}{3}$$

$$14. \frac{9}{21}$$

$$15. \frac{10}{4}$$

Section 4 – 4

Use cross products to solve each proportion.

$$16. \frac{6}{10} = \frac{36}{x}$$

$$17. \frac{4}{7} = \frac{5}{p}$$

$$18. \frac{45}{x} = \frac{15}{3}$$

Use a proportion to solve the following problems.

19. A certain shade of paint is made by mixing 5 parts blue 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 blue paint?

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?

Section 4 – 1

1. In a 40-gallon tank, there are 21 neon tetras and 7 zebra fish. Write the ratio of neon tetras to zebra fish in simplest form.

$$\frac{21 \div 7}{7 \div 7} = \frac{3}{1}$$

Put in simplest form.
 $\frac{3}{1}$, 3 to 1, 3:1

2. In a 40-gallon tank, there are 21 neon tetras and 7 zebra fish. Write the ratio of zebra fish to the total number of fish.

$$\frac{7 \div 7}{28 \div 7} = \frac{1}{4}, 1:4, 1 \text{ to } 4$$

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

3. 7th-graders to 8th-graders $\frac{30 \div 15}{15 \div 15} = \frac{2}{1}$, 2 to 1, 2:1

4. 6th-graders to total students $\frac{25 \div 5}{70 \div 5} = \frac{5}{14}$, 5:14, 5 to 14

5. 7th and 8th-graders to 6th-graders

$$\frac{45 \div 5}{25 \div 5} = \frac{9}{5}, 9 \text{ to } 5, 9:5$$

Section 4 – 2

6. A faucet leaks 668 milliliters of water in 8 minutes. How many milliliters of water does the faucet leak per minute?

$$668 \div 8 = 83.5 \text{ ml per minute}$$

7. An airliner makes a 2,748-mile flight in 6 hours. What is the airliner's average rate of speed in miles per hour?

$$2,748 \div 6 = 458 \text{ miles per hour}$$

8. An after-school job pays \$116.25 for 15 hours of work. How much money does the job pay per hour?

$$116.25 \div 15 = \$7.75 \text{ per hour}$$

Find each unit rate.

9. \$207,000 for 1,800 square feet $207,000 \div 1,800 = \$115 \text{ per ft}^2$

10. \$2,010 in 6 mo $\approx \$335 \text{ in } 1 \text{ mo.}$

$$2,010 \div 6$$

Section 4 - 3

Determine whether the ratios are proportional.

11. $\frac{2}{3} = \frac{4}{6}$ *yes*

12. $\frac{3}{4} = \frac{8}{12}$ *no*

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

Remember - what you do to the numerator, you have to do to the denominator.

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

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

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

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

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

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

Section 4 - 4

Use cross products to solve each proportion.

16. $\frac{6}{10} = \frac{36}{x}$
 $6x = 360$
 $\div 6$
 $x = 60$

17. $\frac{4}{7} = \frac{5}{p}$
 $4p = 35$
 $\div 4$
 $p = 8.75$

18. $\frac{45}{x} = \frac{15}{3}$
 $15x = 135$
 $\div 15$
 $x = 9$

Use a proportion to solve the following problems.

19. A certain shade of paint is made by mixing 5 parts blue 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 blue paint?

$\frac{5}{2} = \frac{8.5}{w}$ $17 = 5w$ 3.4 parts of white
 $\div 5$ $\div 5$

$3.4 = w$

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?

$\frac{40}{18} = \frac{50}{x}$

$40x = 900$
 $\div 40$ $\div 40$

$x = 22.5$ dimes