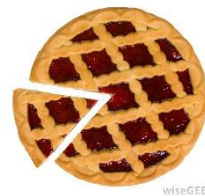


UNIT 1 – DAY 12 NOTES RATIOS AND PROPORTIONS



Ratio: Uses division to compare two quantities.

Ex 1: You can write the ratio of two quantities a and b in three ways:

1. a to b
2. $a:b$
3. $\frac{a}{b}$

Ex 2: A volleyball team plays 14 home matches and 10 away matches. Of those games they win 17 of them.

- a. Find the total number of games the team played?
- b. Find the ratio of home matches to away matches:
- b. Find the ratio of home matches to ALL matches:
- c. Find the ratio of wins to losses:

$$\begin{array}{r} 24 \\ \hline 14:10 \\ \hline 14:24 \\ \hline 17:7 \\ \hline \end{array}$$



Proportions: An equation that states that **two ratios are equivalent**.

Solving Proportions

$$1. \quad \frac{11}{6} = \frac{x}{30}$$

$$x = 55$$

$$2. \quad \frac{w}{35} = \frac{4}{7}$$

$$w = 20$$

$$3. \quad \frac{9}{2} = \frac{m}{12}$$

$$m = 54$$

CROSS MULTIPLY! (not cross cancel)

$$4. \quad \frac{8}{x} = \frac{6}{15}$$

$$\begin{array}{l} 2x = 40 \\ x = 20 \end{array}$$

$$5. \quad \frac{y}{6} = \frac{15}{9}$$

$$\frac{y}{6} = \frac{5}{3}$$

$$\begin{array}{l} 3y = 30 \\ y = 10 \end{array}$$

$$6. \quad \frac{3m}{20} = \frac{3}{10}$$

$$\begin{array}{l} 30m = 60 \\ m = 2 \end{array}$$

Putting Phrases into proportions: Write the sentence as a proportion. Then solve.

1. 5 is to 7 as y is to 49

$$\frac{5}{7} = \frac{y}{49} \quad \frac{7y}{7} = \frac{245}{7}$$

$y = 35$

2. y is to 20 as 9 is to 5

$$\frac{y}{20} = \frac{9}{5} \quad \frac{5y}{5} = \frac{180}{5}$$

$y = 36$

3. 6 is to x as 3 is to 8

$$\frac{6}{x} = \frac{3}{8}$$

$$\frac{48}{3} = \frac{3x}{3}$$

$x = 16$

4. 3 is to 9 as 10 is to x

~~$$\frac{3}{9} = \frac{10}{x}$$~~

$$\frac{90}{3} = \frac{3x}{3}$$

$x = 30$

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