

Name: \_\_\_\_\_

Date: \_\_\_\_\_

## 1.1 Ratios & Proportional Reasoning

### Warm Up:

Simplify these fraction to their lowest terms. Remember to divide both numerator (top number) and denominator (bottom number) by the greatest common factor.

a.  $\frac{4}{6} \stackrel{\div 2}{=} \frac{1}{3}$

d.  $\frac{15}{21} \stackrel{\div 3}{=} \frac{5}{7}$

g.  $\frac{20}{50} \stackrel{\div 10}{=} \frac{2}{5}$

b.  $\frac{3}{12} \stackrel{\div 3}{=} \frac{1}{4}$

e.  $\frac{8}{18} \stackrel{\div 2}{=} \frac{1}{2}$

h.  $\frac{3}{21} \stackrel{\div 3}{=} \frac{1}{7}$

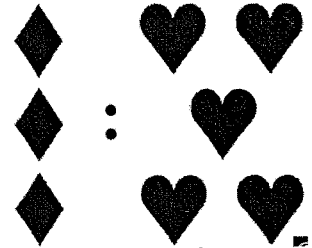
c.  $\frac{25}{75} \stackrel{\div 25}{=} \frac{1}{3}$

f.  $\frac{45}{100} \stackrel{\div 5}{=} \frac{9}{20}$

i.  $\frac{7}{56} \stackrel{\div 7}{=} \frac{1}{8}$

### Connect:

A ratio is a \_\_\_\_\_ of \_\_\_\_\_ or more quantities.



### Examples:

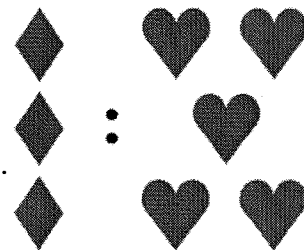
1. The school store orders 10 Pepperoni pizzas and 8 Hawaiian pizzas. Write the ratio.

2. Basketball academy has 16 Gr 10 students and 9 Gr 11 students. Write the ratio.

3. In a bag of coloured cubes, that ratio of green cubes to purple cubes is 5:7. If there are 70 green cubes, how many purple cubes are there?

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## 1.1 Ratios & Proportional Reasoning



**Connect:**

A ratio is a comparison of two or more quantities.

**Examples:**

1. The school store orders 10 Pepperoni pizzas and 8 Hawaiian pizzas. Write the ratio.

$$\begin{array}{l} 10 : 8 \\ \text{pep} \quad \text{haw} \end{array} = \frac{10}{8}$$

2. Basketball academy has 16 Gr 10 students and 9 Gr 11 students. Write the ratio.

$$\begin{array}{l} 16 : 9 \\ \text{Gr10} \quad \text{Gr11} \end{array} = \frac{16}{9}$$

3. In a bag of coloured cubes, that ratio of green cubes to purple cubes is 5:7. If there are 70 green cubes, how many purple cubes are there?

$$\frac{\text{green}}{\text{purple}} = \frac{5 \text{ green}}{7 \text{ purple}} = \frac{70 \text{ green}}{x} \Rightarrow \frac{5x}{5} = \frac{490}{5} \Rightarrow \boxed{x = 98}$$

4. On a school trip, ratio of boys to girls is 4:3. If there are 18 girls on the trip, how many boys are there?

$$\frac{B}{G} = \frac{4}{3} = \frac{x}{18} \Rightarrow \frac{(\cancel{3})(18)4}{\cancel{3}18} = \frac{x(\cancel{18})(3)}{\cancel{18}18} \Rightarrow \frac{72}{3} = \frac{3x}{3} \Rightarrow \boxed{24 = x}$$

5. Calvin, a builder, has found he can arrange work cubicles of his employee's best if the ratio between the length and the width of the room is 3:2. If a room is 6m long, how wide should the room be?

$$\frac{l}{w} = \frac{3}{2} = \frac{6}{x} \Rightarrow \frac{(\cancel{2})(x)3}{\cancel{2}x} = \frac{6(\cancel{x})(2)}{\cancel{x}x} \Rightarrow \frac{3x}{2} = \frac{12}{3} \Rightarrow \boxed{x = 4}$$

(or)  $3:2 = 6:x \Rightarrow x = 4$

6. An apprentice mechanic rotates the 4 tires on a truck in 15 minutes. How long would it take him to rotate the tires on 5 trucks? How long does rotating 2 tires take?

$$\frac{\text{truck}}{\text{min}} = \frac{1 \text{ truck}}{15 \text{ min}} = \frac{5 \text{ truck}}{x} \Rightarrow \boxed{x = 75 \text{ min}}$$

$$\frac{(\cancel{15})(x)4 \text{ tires}}{15 \text{ min}} = \frac{2 \text{ tires}}{x} (\cancel{x})(15) \Rightarrow \frac{4x}{4} = \frac{30}{4} \Rightarrow \boxed{x = 7.5 \text{ min}}$$

**Assignment:** Build Your Skills worksheet & p21 #1-2, 5-7

**Additional Practice:** p21 #8 & p22 Puzzle It Out