

# RATIO, PROPORTION AND PERCENT WORKSHEET

## Ratios

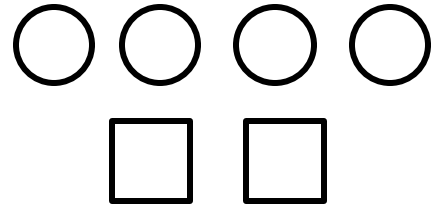
1) The ratio of red to white flowers is 2:5. If both the number of red and white flowers are doubled, what is the new ratio of red to white flowers? **4:10**

2) Which ratio does not belong in the group?  $\frac{2}{5}$ ,  $\frac{4}{10}$ ,  $\frac{1}{2.5}$ ,  $\frac{14}{35}$ ,  $\frac{5}{10}$ ,  ~~$\frac{9}{22.5}$~~

3) Keeping the ratio the same, how many circles and squares do you need to add to have a total of 12 (circles plus squares)?

Circles: **4**

Squares: **2**



4) Explain how you solved problem 3. Will the same procedure work to get a total of 15 (circles plus squares)? How many would you add for 15?

Circles: **6**      Squares: **3**

**Add equivalent ratios to original ratio. Yes, but you have to reduce the ratio first.**

5) Why do we prefer to have ratios in fraction form? Can you give an example?

**We can manipulate fractions mathematically. Problem 4 is one example of simplifying the ratio fraction representation before adding it to the original.**

6) Give two examples (not in the *Algebra World* program or your textbook) of rates. Write them in fraction form.

$$365 \text{ days per year} = \frac{365 \text{ days}}{1 \text{ year}}, \quad 24 \text{ hours per day} = \frac{24 \text{ hours}}{1 \text{ day}}$$

7) Give an example of a unit rate (not in the *Algebra World* program or your textbook) that you see or use everyday.

$$52 \text{ weeks per year} = \frac{52 \text{ weeks}}{1 \text{ year}}, \quad 3 \text{ shifts per day} = \frac{3 \text{ shifts}}{1 \text{ day}}$$

8) For the following ratio pairs, fill in the appropriate sign: greater than (>); less than (<); or equal (=).

a)  $\frac{2}{3} = \frac{6}{9}$       b)  $\frac{3}{4} > \frac{76}{102}$       c)  $\frac{5}{4} = \frac{25}{20}$   
 b)  $\frac{13}{33} < \frac{195}{47.5}$       c)  $\frac{7}{3} < \frac{21}{8}$       d)  $\frac{11.5}{23} < \frac{34}{56}$

### Proportions

9) Solve proportion,  $\frac{2}{x} = \frac{7}{14}$ . Show each step of the process you use.

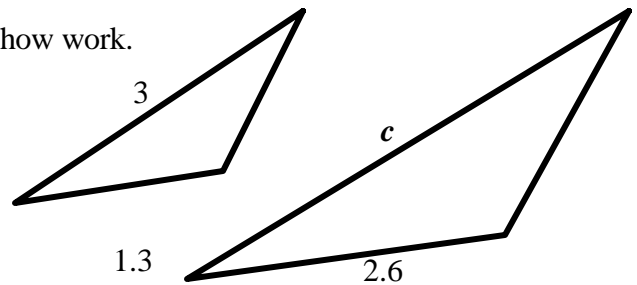
a) **Cross multiply**       $2(14) = 7x$   
 b) **Divide both sides by 7,**       $\frac{2(14)}{7} = \frac{7x}{7}$   
 c) **Solve for x,**       $x = 4$

10) A sports car can drive 1,300 kilometers in one day. How many days for the sports car to drive 4,290 kilometers? Set up as a proportion equation and solve.

a) **1,300 is to 1 as 4,290 is to what, x?**  
 b)  $\frac{1,300}{1} = \frac{4,290}{x}$   
 c) **x = 3.3 days**

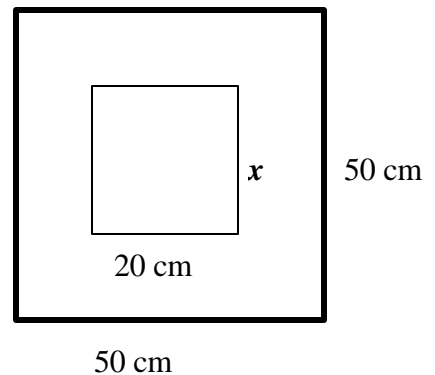
11) A and B are similar triangles. What is side c? Show work.

a)  $\frac{3}{1.3} = \frac{c}{2.6}$   
 b) **c = 6**



12) For the similar squares below, find x.

a)  $\frac{50}{50} = \frac{x}{20}$   
 b) **x = 20**



## Percent

13) What is a percent and why are percents important?

**A percent is ratio of a number to 100 --  $\frac{x}{100} = x\%$  . It is important because we use it in many places in every day life.**

14) Describe four things in the day that are described by a percent. Look through a newspaper or magazine if you need to.

- i. **Interest gained in a savings account.**
- ii. **Political approval ratings.**
- iii. **The chance for rain.**
- iv. **Inflation.**

15) Write the following as percents:

a)  $\frac{1}{2} = 50\%$     b)  $0.75 = 75\%$     c)  $\frac{3}{8} = 37.5\%$     d)  $1.5 = 150\%$

e)  $\frac{2}{3} = 66.67\%$     f)  $5.3 = 530\%$     g)  $\frac{7}{6} = 116.67\%$     h)  $1 = 100\%$

16) Why can you solve percent problems as a proportion problem?

**A percent is ratio and a proportion is a ratio equation. You solve equations.**

17) What does it mean for a percent to be greater than 100%? For example 150%. Give an example where greater than 100% might be used.

**Greater than 100% means greater than 1. Comparing the size of a large object to a small object.**

18) A \$200 bicycle is on sale with a 30% discount. How much is the sale price?

a) **Cost = price - discount**

b) **discount =  $200(30\%) = \frac{200(30)}{100} = 60$**

c) **Cost =  $200 - 60 = 140$**

d) **Cost = \$140**

