Welcome to Mrs. Kashiwa's Geometry Class!

Pick up colored copies and a calculator

Classroom Overview

Cell phones - if I see it I take it away. period.
HW - I check at the beginning of the period during warm ups
Scientific Calculator daily
Absent - check my website - kashiwamath.weebly.com
Part Time - periods 3 - 6, Tuesday access only
Grade Breakdown:

Tests:	60%
Assignments:	20%
PSAT	**5%**
Final Exam	15%

Handouts

Geometry Online Textbook Login and Tutoring

Website: www.powergeometry.com

Login: bcbears17

Password: bears17

Learning Goal: Today I will learn about ratios and proportions.

Success Criteria: I am able to set up a ratio and a proportion, and use them to solve for a variable.

7.1 Ratios and Proportions

What does it mean to be proportional?

*Ratios and Proportions

Ratio - <u>comparison</u> of 2 quantities using <u>division</u>
- can write it a:b, a to b or $\frac{a}{b}$

- write it in the simplest form (reduce!)

Exercise: A little boys height is 3'. His fathers height is 6'
Write a ratio of their heights.

3' to 6'   3:6 $\frac{3}{6} = \frac{1}{2}$

Extended ratio - <u>ratio</u> that compares <u>3</u> or more <u>numbers</u>
  - a:b:c or a:b, b:c and a:c

Exercise: If the perimeter is 98 in, what is the value of x?

$$3x + 5x + 6x = 98$$

Proportion - an <u>equation</u> that states that 2 <u>ratios</u> are equal

Ratios and Proportions

Bonsai Trees   The bonsai bald cypress tree shown here is a small version of a full-size tree. In Longwood, Florida, a bald cypress tree called the <u>Senator</u> stands <u>118 ft</u> tall. <u>What</u> is the <u>ratio</u> of the <u>height</u> of the <u>bonsai</u> to the <u>height</u> of the <u>Senator?</u>

15 in.

1 ft

Remember you can write a ratio 3 different ways:

Bonsai to Senator   or   **Bonsai : Senator**   or   <u>**Bonsai**</u>
                                                        Senator

$12 \text{ in} = 1 \text{ ft}$

$$118 \text{ ft} \times \frac{12 \text{ in}}{1 \text{ ft}}$$

$$1416 \text{ in}$$

$$\frac{15 \text{ in}}{118 \text{ ft}}$$

$$\frac{15 \text{ in}}{1416 \text{ in}}$$

You Try!

Write the ratio of the first measurement to the second measurement.

height of a table tennis net: 6 in.
height of a tennis net: 3ft $\times \dfrac{12 \text{ in}}{1\text{ft}}$

$\require{cancel}\cancel{\dfrac{6}{3}}\cancel{\times}2$

36

$\dfrac{6in}{36in} = \left(\dfrac{1}{6}\right)$

Ratios and Proportions

Solve a proportion using cross multiplication.

$\dfrac{a}{b}\cancel{\times}\dfrac{c}{d}$ $a \cdot d = b \cdot c$

$a \cdot d = c \cdot b$

Solve the proportions

$$\frac{3}{y} = \frac{15}{35}$$

$$3 \cdot 35 = 15y$$

$$\frac{105}{15} = \frac{15y}{15}$$

$$\boxed{7 = y}$$

$$\frac{14}{(x-1)} = \frac{7}{17}$$

$$14 \cdot 17 = 7(x-1)$$

$$238 = 7x - 7$$
$$ +7 \qquad +7$$
$$\frac{245}{7} = \frac{7x}{7}$$

$$\boxed{35 = x}$$

You Try!
Solve the proportions

a. $\dfrac{9}{2} = \dfrac{a}{14}$

b. $\dfrac{15}{(m+1)} = \dfrac{3}{m}$

$$15m = 3(m+1)$$
$$15m = 3m + 3$$
$$-3m \quad -3m$$
$$\frac{12m}{12} = \frac{3}{12}$$

$$\boxed{m = 1/4}$$

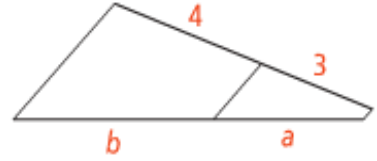In the diagram, $\frac{a}{b} = \frac{3}{4}$. Complete each statement. Justify your answer.

27. $\frac{b}{a} = \frac{\blacksquare}{\blacksquare}$ **28.** $4a = \blacksquare$ **29.** $\frac{\blacksquare}{\blacksquare} = \frac{b}{4}$

30. $\frac{\blacksquare}{\blacksquare} = \frac{7}{4}$
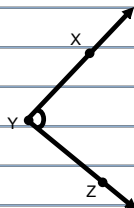
*Ratios and Proportions

The lengths of the sides of a triangle are in the extended ratio $3 : 5 : 6$. The perimeter of the triangle is 98 in. What is the length of the longest side?

Closure: Today I learned how to set up ratios and proportions, and solve for an unknown.

2:PS#1   P436 #9, 17-25 odd, 31, 41, 43   John Smith
                                                                    P4

1. Label angle 3 ways:

Today's Work:

Start PS#1