

### 7.1 Ratios and Proportions

**G.T.4** Given two triangles, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding parts of angles and the proportionality of all corresponding pairs of sides, and to establish the AA criterion for two triangles to be similar.

**Ratio** ⇨ \_\_\_\_\_

The ratio  $a$  to  $b$  can be expressed as  $\frac{a}{b}$  or  $a:b$ .

**Ex 1:**

The total number of students who participate in sports programs at Central High School is 520. The total number of students in the school is 1850. Find the athlete-to-student ratio to the nearest tenth.

\_\_\_\_\_ ⇨ used to compare three or more numbers

**Ex 2:**

In a triangle, the ratio of the measures of three sides is 4:6:9, and its perimeter is 190 inches. Find the length of the longest side of the triangle.

\_\_\_\_\_ ⇨ an equation stating that two ratios are equal

For example,

$$\frac{3}{4} = \frac{9}{12}$$

Products: \_\_\_\_\_

**Ex 3:**

Solve the proportion.

$$\frac{4x - 5}{3} = \frac{-26}{6}$$

**Ex 4:**

Monique randomly surveyed 30 students from her class and found that 18 had a dog or a cat for a pet. If there are 870 students in Monique's school, predict the total number of students with a dog or a cat.