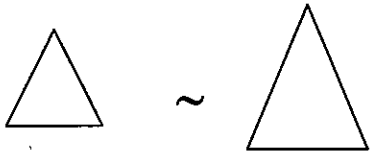


Name \_\_\_\_\_

Date \_\_\_\_\_

### Finding the Missing Side of Similar Polygons

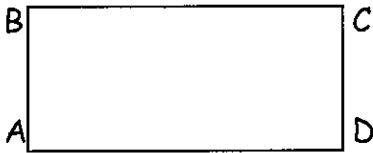
Polygon - \_\_\_\_\_



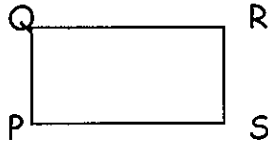
Similar ~ means:

- same shape
- different size

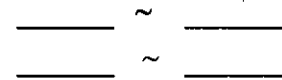
#### Corresponding Sides



~



$$\frac{\overline{AB}}{\overline{BC}} \sim \frac{\overline{PQ}}{\overline{QR}}$$

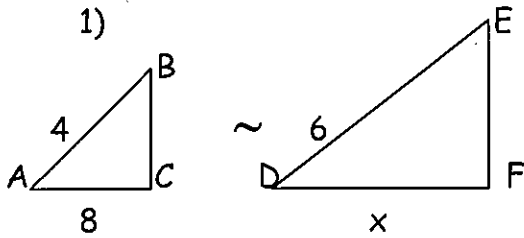


They are in the *same* position on both figures (ex. both top, both bottom, etc.)

\*\* Corresponding sides are in *ratio* to one another

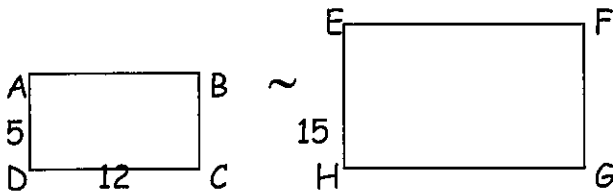
- Find the missing side using a proportion.

Example:

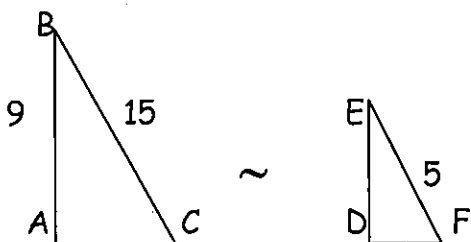


$$\frac{\quad}{\quad} = \frac{\quad}{\quad}$$

2) Find side  $\overline{HG}$

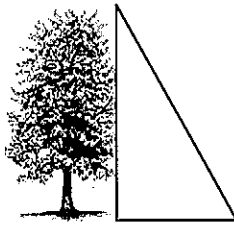


3) Find side  $\overline{DE}$



## Word Problems

1) If a 5 foot man cast a 3 foot shadow, how long of a shadow would a 10 foot tree have?



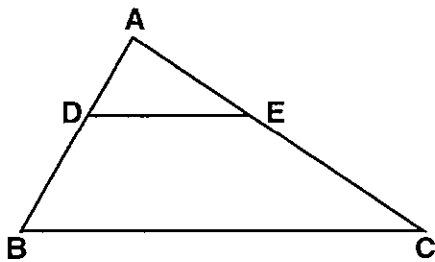
$$\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

2) If an 8 foot tree casts a 6 foot shadow, how tall is a man that casts a 3 foot shadow?  
(Draw the triangles and label with units)

## Angle-Angle Similarity

The **angle-angle similarity postulate** states that if two pairs of angles in two triangles are congruent, then the triangles are similar. Given a triangle you can create a similar triangle by drawing a line parallel to a side, inside the triangle.

① In the accompanying figure,  $\overline{DE} \parallel \overline{BC}$ ,  $\overline{AD} = 10$ ,  $\overline{AB} = 24$ , and  $\overline{AC} = 36$ . Find  $\overline{AE}$ .



② In the accompanying diagram of  $\triangle ABC$ ,  $\overline{AFB}$ ,  $\overline{AEC}$ ,  $\overline{AC} \perp \overline{CB}$ ,  $\overline{AE} \perp \overline{EF}$ ,  $\overline{BF} = 8$ ,  $\overline{FA} = 12$ ,  $\overline{FE} = 9$ , and  $\overline{BC} = x$ . What is the value of  $x$ ?

