

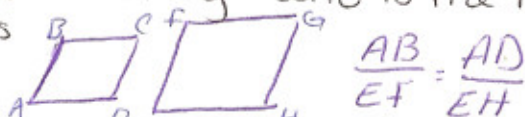
# Ch. 7 review

**Sec 1 - Ratios and proportions** proportion is a statement that 2 ratios are equal

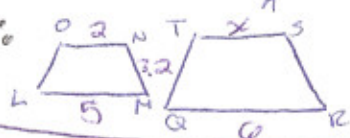
properties:  $\frac{a}{b} = \frac{c}{d}$  to  $ad = bc$   $\frac{a}{c} = \frac{b}{d}$   $\frac{b}{a} = \frac{d}{c}$   $\frac{a+b}{b} = \frac{c+d}{d}$

solving:  $\frac{x}{5} = \frac{12}{7}$   $7x = 5(12)$   $7x = 60$   $x = \frac{60}{7}$  or  $8\frac{4}{7}$

**Sec 2 - Similar polygons** similarity ratio is the ratio of the lengths of corresponding sides



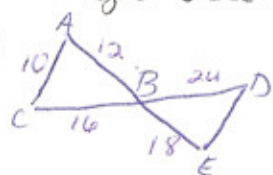
solving:



$\frac{LM}{PQ} = \frac{ON}{RS}$   $\frac{5}{6} = \frac{2}{x}$   $5x = 12$   $x = 2.4$

**Sec 3 - Proving Triangles Similar** use Angle-Angle (AA) Side-Side-Side (SSS) and side-angle-side (SAS)

solving:



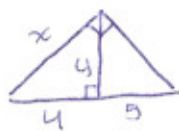
$\frac{AB}{EB} = \frac{2}{3}$   $\frac{CB}{DB} = \frac{2}{3}$   $\frac{CA}{DE} = \frac{2}{3}$   $\frac{10}{DE} = \frac{2}{3}$   $2DE = 30$   
 $DE = 15$

**Sec 4 - Similarity in Right Triangles** geometric mean - of a and b is the positive # x such that  $\frac{a}{x} = \frac{x}{b}$   $x = \sqrt{ab}$

solving:  $\frac{4}{x} = \frac{x}{18}$   $x^2 = 72$   $x = \sqrt{72}$   $x = 6\sqrt{2}$

Thm - Altitude to the hypotenuse of a rt  $\Delta$  divides the  $\Delta$  into 2  $\Delta$  that are similar to original  $\Delta$

solving:



$\frac{4}{x} = \frac{x}{4+9}$   $x^2 = 36$   $x = 6$   $\frac{4}{y} = \frac{y}{5}$   $y^2 = 20$   $y = 2\sqrt{5}$

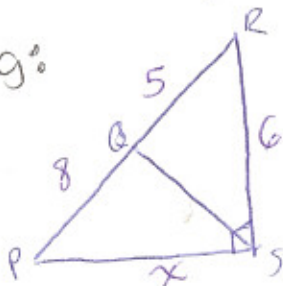
**Sec 5 - Proportions in Triangles** side-splitter and triangle-angle-bisector

solving:



$\frac{TS}{SR} = \frac{TU}{UV}$   $\frac{x}{10} = \frac{5}{10}$   $80 = 10x$   $8 = x$

solving:



$\frac{PS}{SR} = \frac{PQ}{RQ}$   $\frac{x}{6} = \frac{8}{5}$   $5x = 48$   $x = 9.6$