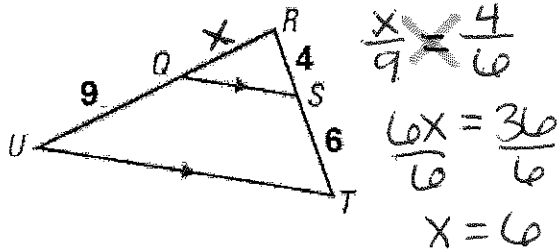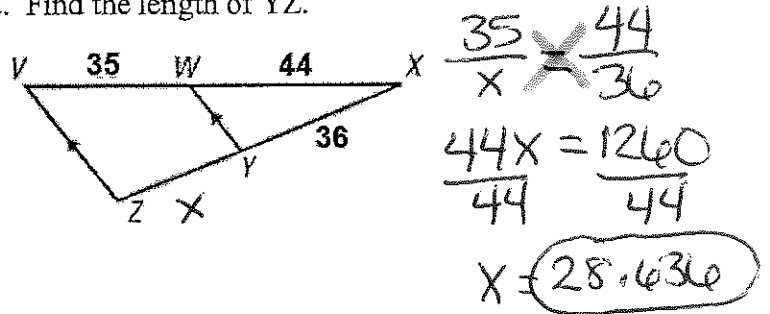## Proportions and Parallel Lines

Name: _____

Triangle Proportionality Theorem

If a line parallel to one side of a **triangle** intersects the other two sides of the **triangle**, then the line divides these two sides proportionally.
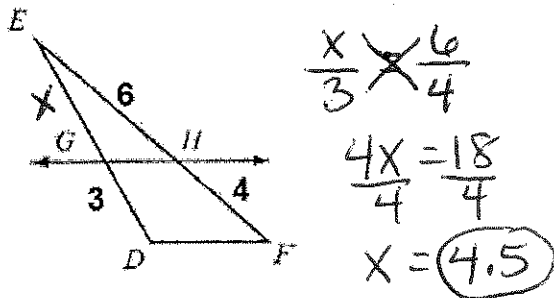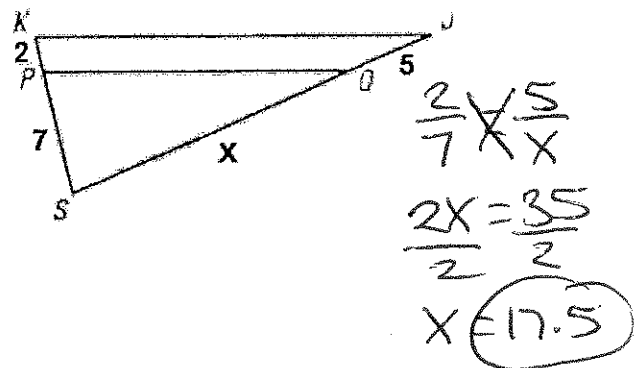
1. Find the length of RQ.

$$\frac{x}{9} \times \frac{4}{6}$$

$$\frac{6x}{6} = \frac{36}{6}$$

$$x = 6$$

2. Find the length of YZ.

$$\frac{35}{x} \times \frac{44}{36}$$

$$\frac{44x}{44} = \frac{1260}{44}$$

$$x = 28.636$$

3. Given GH // DF, find the length of GE.

$$\frac{x}{3} \times \frac{6}{4}$$

$$\frac{4x}{4} = \frac{18}{4}$$

$$x = 4.5$$

4. Find the value of x given PQ // KJ

$$\frac{2}{7} \times \frac{5}{x}$$

$$\frac{2x}{2} = \frac{35}{2}$$

$$x = 17.5$$

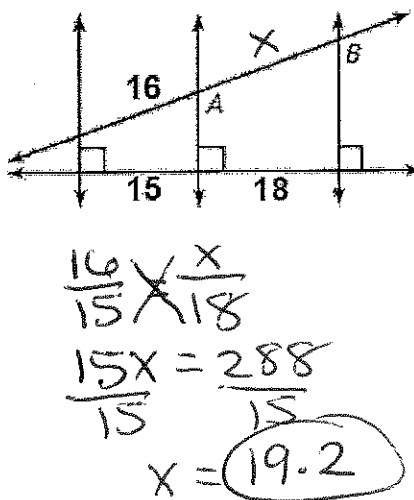## Parallel lines divide a transversal proportionally

If three or more parallel lines intersect two transversals, then they cut off the transversals proportionally.

5. Find the length of AB.

$$\frac{16}{15} \times \frac{x}{18}$$

$$\frac{15x}{15} = \frac{288}{15}$$

$$x = 19.2$$

6. Find the value of x.

$$\frac{7.5}{2.5} \times \frac{x+4}{x-2.5}$$

$$2.5(x+4) = 7.5(x-2.5)$$

$$2.5x + 10 = 7.5x - 18.75$$

$$-2.5x \qquad -2.5x$$

$$\frac{10}{+18.75} = \frac{5x - 18.75}{+18.75}$$

$$\frac{28.75}{5} = \frac{5x}{5}$$

$$x = 5.75$$