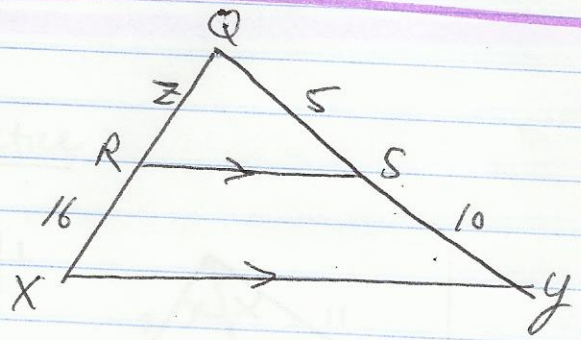
7-5 Proportions in △s.

Side-Splitter Theorem

If a line is parallel to one side of a △ and intersects the other 2 sides, then it divides those sides proportionally.



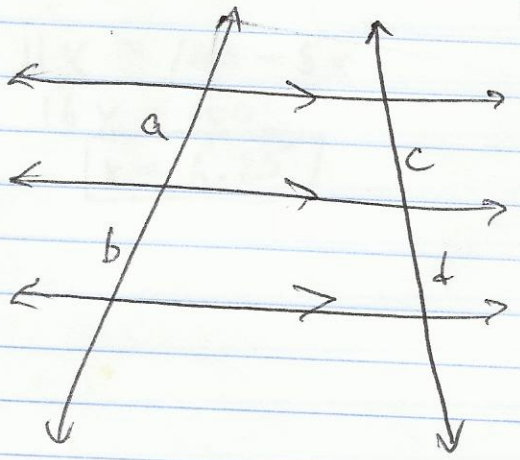
$$\frac{QR}{RX} = \frac{QS}{SY}$$

$$\frac{z}{16} = \frac{5}{10}$$

$$\boxed{z = 8}$$

Side-Splitter "Corollary" → || lines

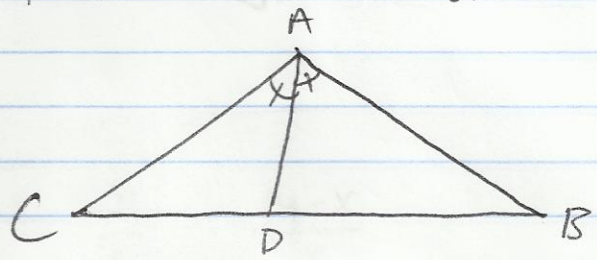
If 3 || lines intersect two transversals, then the segments intersected on the transversals are proportional.



$$\frac{a}{b} = \frac{c}{d}$$

Triangle-Angle-Bisector Theorem:

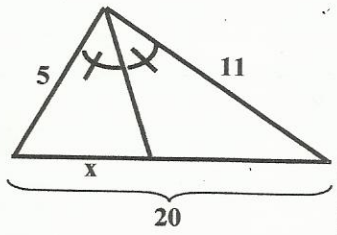
An angle bisector, in a triangle, divides the triangle into two segments proportional to the other 2 sides of the Δ.



$$\frac{CD}{DB} = \frac{AC}{AB}$$

Practice:

1.

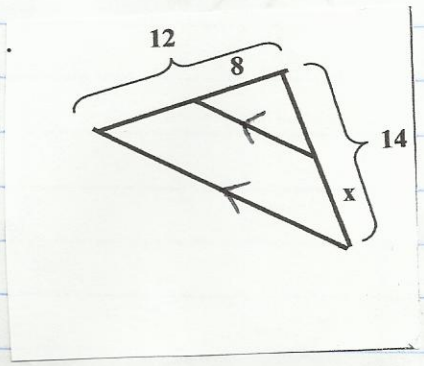


$$\frac{x}{20-x} = \frac{5}{11}$$

$$11x = 100 - 5x$$

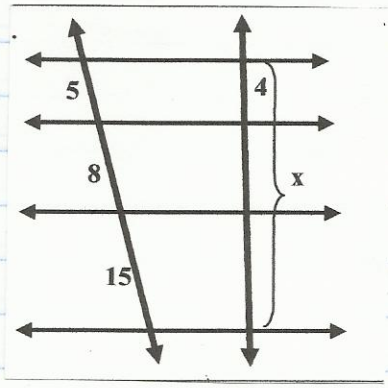
$$16x = 100$$

$$\boxed{x = 6.25}$$



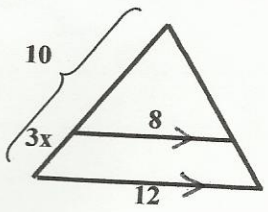
$$\frac{8}{4} = \frac{14-x}{x}$$

$$8x = 4(14-x)$$
$$8x = 56 - 4x$$
$$12x = 56$$
$$\boxed{x = 4.\overline{6}}$$



$$\frac{5}{23} = \frac{4}{x-4}$$

$$92 = 5(x-4)$$
$$92 = 5x - 20$$
$$5x = 112$$
$$\boxed{x = 22.4}$$



$$\frac{8}{12} = \frac{10-3x}{10}$$

$$80 = 12(10-3x)$$
$$80 = 120 - 36x$$
$$\frac{-36x}{-36} = \frac{-40}{-36}$$

$$\boxed{x = 1.\overline{1}}$$