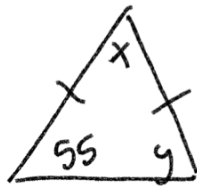
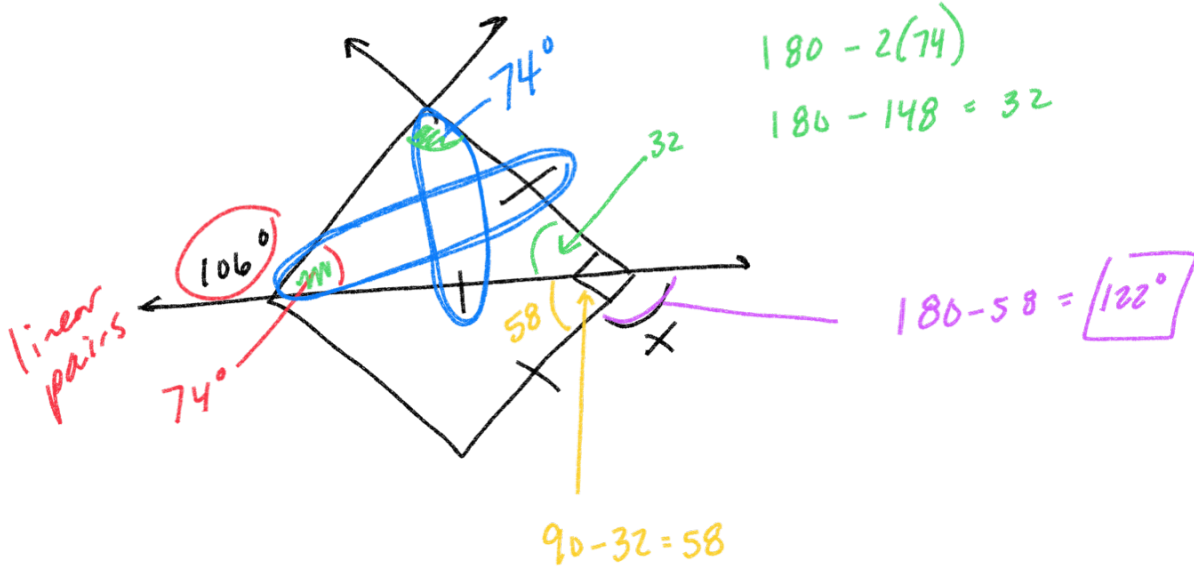


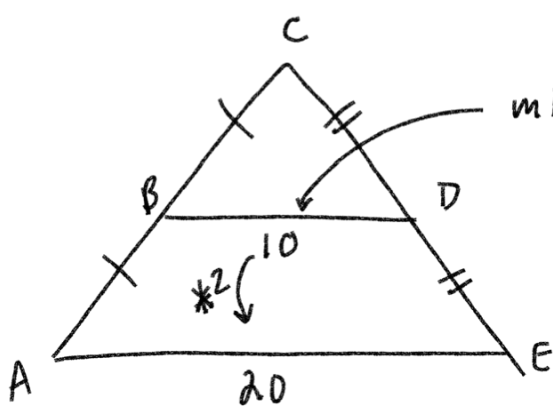
TH-G Geometry Week 23



$$x = 70$$

$$y = 55$$

5-1 Midsegments of Triangles

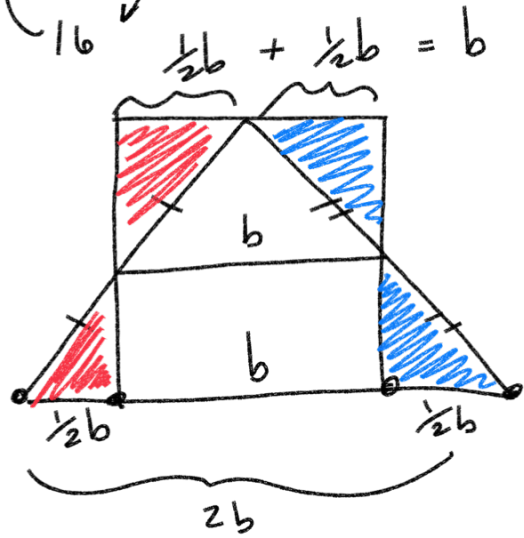
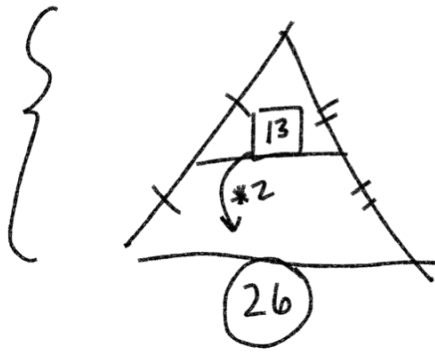
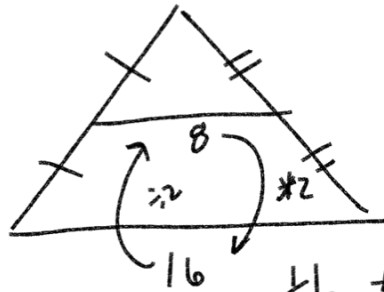


\overline{BD} midsegment bisects each of the two sides on a triangle

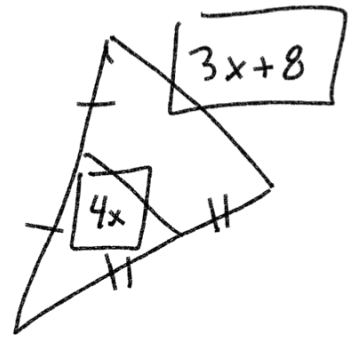
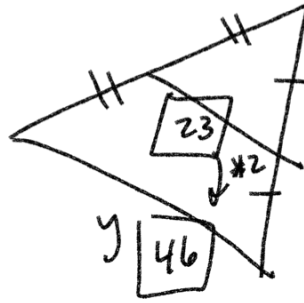
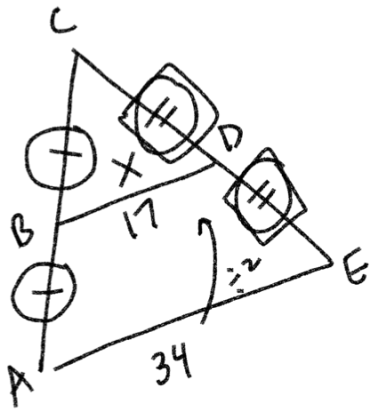
Base = 2 * Length of midsegment

$\overline{AB} \cong \overline{BC}$ $\overline{CD} \cong \overline{DE}$

~~$\overline{AB} \cong \overline{CD}$~~
not necessarily



①



$x = 17$

$2\overline{BD} = \overline{AE}$

$2x = \frac{34}{2}$

$x = 17$

$y = 46$

$x =$

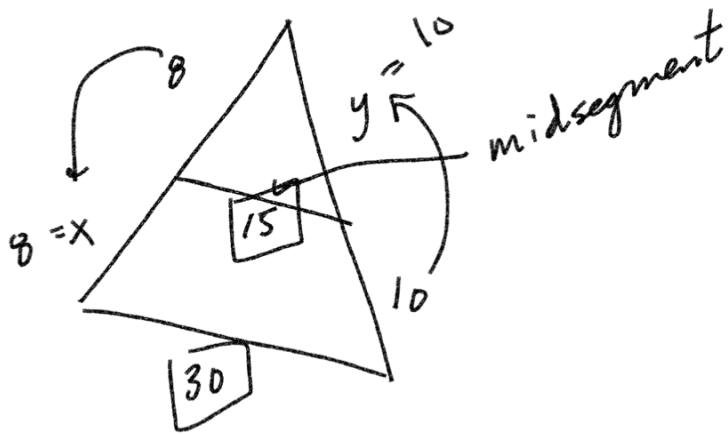
$2(4x) = 3x + 8$

$8x = 3x + 8$

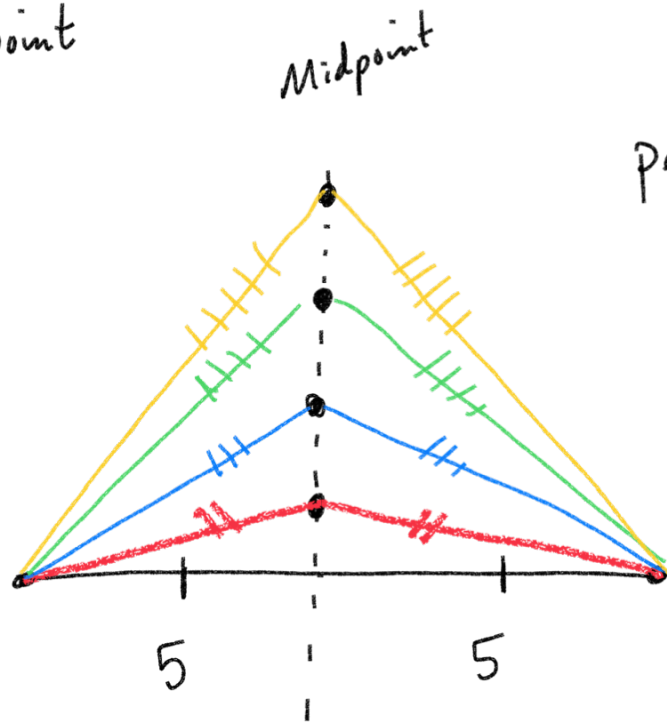
$-3x \quad -3x$

$\frac{5x}{5} = \frac{8}{5}$

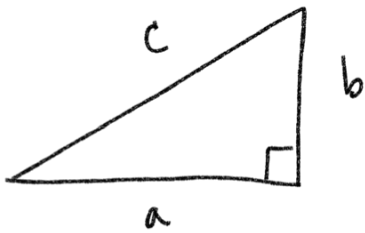
$x = \frac{8}{5}$



Triangle Midpoint



perpendicular
bisect



Right Triangle
Pythagorean Theorem

$$a^2 + b^2 = c^2$$

$a^2 + b^2 = c^2$
 $4^2 + 3^2 = c^2$
 $16 + 9 = c^2$
 $\sqrt{25} = \sqrt{c^2}$
 $5 = c$

$(4-0)^2 + (3-0)^2 = 5$

distance formula

$$\sqrt{a^2 + b^2} = c$$

Distance Formula

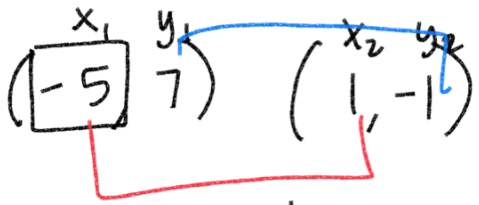
$$\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} = d$$

(x_1, y_1) (x_2, y_2)

$(1, 6)$ $(6, -6)$

$$\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} = d$$
$$\sqrt{(6 - 1)^2 + (-6 - 6)^2} = d$$
$$\sqrt{5^2 + (-12)^2}$$

$$\sqrt{25 + 144} = \sqrt{169} = \boxed{13}$$



Distance Formula

$$\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} = d$$

$$(-5 - 1) = (-6)^2 = 36$$

$$\sqrt{(1 - (-5))^2 + (-1 - 7)^2}$$

$$\sqrt{6^2 + (-8)^2}$$

$$= \sqrt{36 + 64} = \sqrt{100} = \boxed{10}$$

$$d = \sqrt{(\Delta x)^2 + (\Delta y)^2}$$

$\Delta \rightarrow$ "change"

$(-5, 7)$

