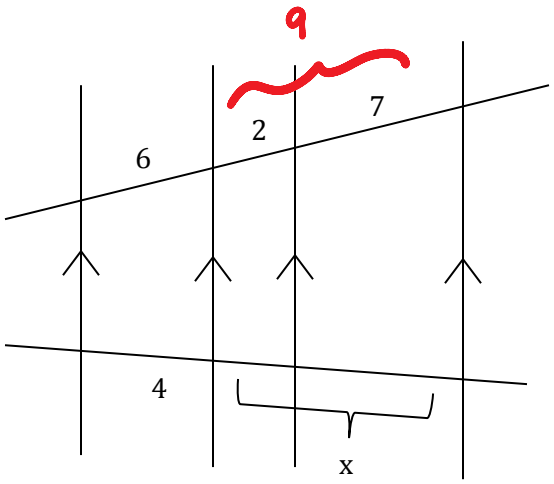
Station 1:

a. Find x:

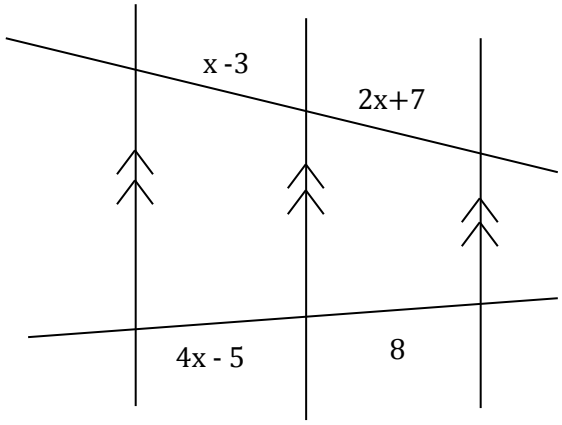


$\frac{6}{4} = \frac{9}{x}$

$6x = 36$

$\boxed{x = 6}$

b. Find x:



$\frac{x-3}{4x-5} = \frac{2x+7}{8}$

$8(x-3) = (4x-5)(2x+7)$

$8x - 24 = 8x^2 + 18x - 35$

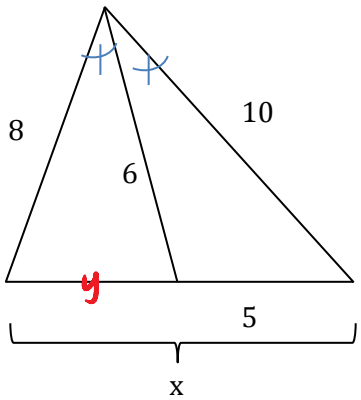
$0 = 8x^2 + 10x - 11$

$x = \frac{-10 \pm \sqrt{100 - 4(8)(-11)}}{2(8)}$

$x = \frac{-10 \pm \sqrt{452}}{16} = \frac{-10 \pm 2\sqrt{113}}{16} = \boxed{\frac{-5}{8} \pm \frac{\sqrt{113}}{8}}$

Station 2:

Find x:



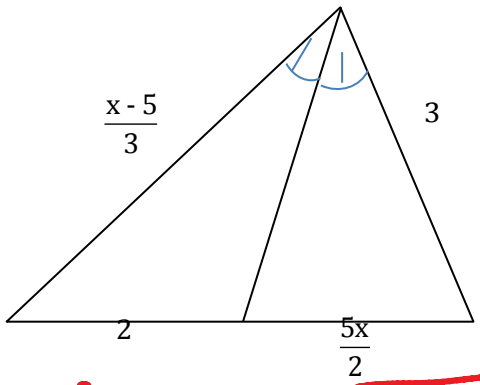
$\frac{8}{y} = \frac{10}{5}$

$10y = 40$

$y = 4$

$\boxed{x = 9}$

Find x:



$\frac{\frac{x-5}{3}}{2} = \frac{3}{\frac{5x}{2}}$

$\frac{x-5}{3} \cdot \frac{5x}{2} = 6$

$\frac{5x^2 - 25x}{6} = 6$

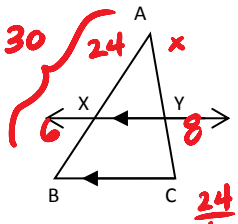
$5x^2 - 25x - 36 = 0$

$x = \frac{25 \pm \sqrt{625 - 4(5)(-36)}}{2(5)}$

$x = \frac{25 \pm \sqrt{1345}}{10}$

$\boxed{x = \frac{5}{2} \pm \frac{\sqrt{1345}}{10}}$

Station 3:



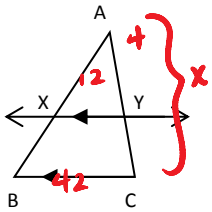
a. Given: AB = 30
AX = 24
YC = 8
Find: AC

$\frac{24}{6} = \frac{x}{8}$

$\frac{4}{1} = \frac{x}{8}$

$x = 32$

$\boxed{AC = 40}$



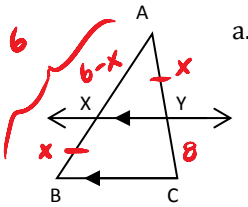
b. Given: AY = 4
XY = 12
BC = 42
Find: YC

$\frac{\cancel{42}}{12} = \frac{4}{\cancel{x}}$

$12x = 168$

$x = 14$

$\boxed{YC = 10}$



a. Given: AY = BX
YC = 8
AB = 6
Find: BX

$\frac{6-x}{x} = \frac{x}{8}$

$8(6-x) = x^2$

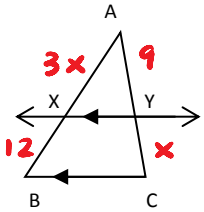
$48 - 8x = x^2$

$0 = x^2 + 8x - 48$

$0 = (x+12)(x-4)$

$x = \cancel{-12}, 4$

$\boxed{BX = 4}$



d. Given: AX = 3YC
AY = 9
BX = 12
Find: YC

$\frac{3x}{12} = \frac{9}{x}$

$3x^2 = 108$

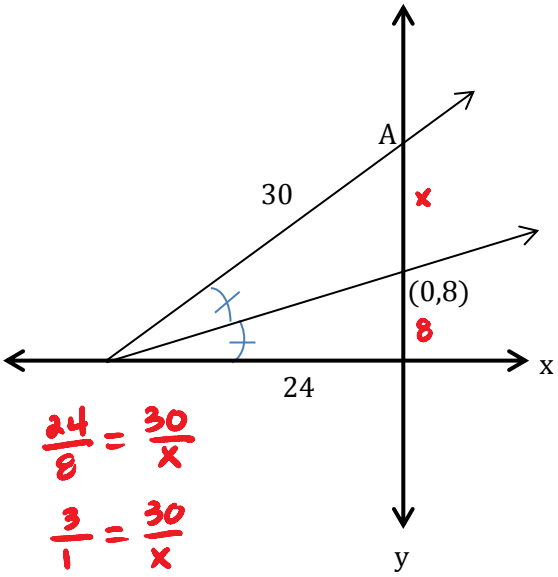
$x^2 = 36$

$x = \pm 6$

$YC = 6$

Station 4:

a. Find the Coordinates of A



$\frac{24}{8} = \frac{30}{x}$

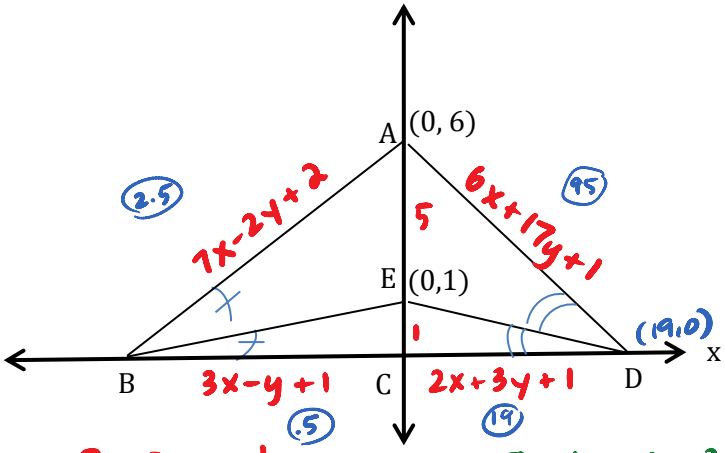
$\frac{3}{1} = \frac{30}{x}$

$3x = 30$

$\boxed{x = 10}$

$\boxed{A: (0, 18)}$

a. Find the Coordinates of D *(note: diagram not to scale)*
AB = 7x - 2y +2 DA = 6x +17y + 1
BC = 3x – y +1 DC = 2x +3y + 1



$\frac{7x-2y+2}{5} = \frac{3x-y+1}{1}$

$7x - 2y + 2 = 15x - 5y + 5$

$-3 = 8x - 3y$

$\frac{6x+17y+1}{5} = \frac{2x+3y+1}{1}$

$6x + 17y + 1 = 10x + 15y + 5$

$-4 = 4x - 2y$

$8x - 3y = -3 \Rightarrow \cancel{8x} - 3y = -3$

$-2(4x - 2y = -4) \Rightarrow \cancel{-8x} + 4y = 8$

$y = 5$

$8x - 3(5) = -3$

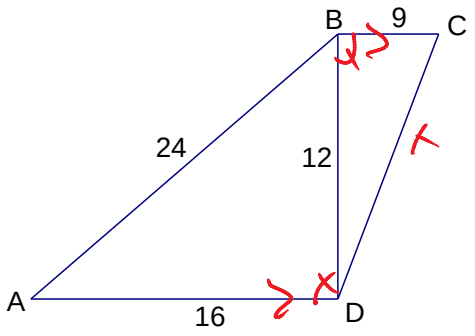
$8x - 15 = -3$

$8x = 12$

$x = \frac{3}{2} = 1.5$

Station 5:

. Given: $\overline{AD} \parallel \overline{BC}$, $\overline{AB} = 24$, $\overline{BC} = 9$, $\overline{AD} = 16$, and $\overline{DB} = 12$



a) How do you show the two triangles are similar?

SAS ~

$\frac{9}{12} = \frac{3}{4}$

$\frac{12}{16} = \frac{3}{4}$

b) Which angle is congruent to < A?

∠BDC

c) Find CD.

$\frac{3}{4} = \frac{x}{24}$

$72 = 4x$

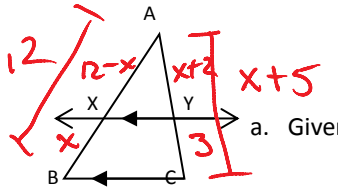
$x = 18$

Station 6:

Relaxation station:

Doodle and draw something happy

STATION 7:



a. Given: AC = BX + 5

YC = 3

AB = 12

Find: AC $= 9$

(hint: solve for BX first)

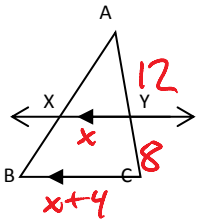
$$\frac{12}{12-x} = \frac{x+5}{x+2}$$

$$12x+24 = -x^2+7x+60$$

$$x^2+5x-36=0$$

$$(x+9)(x-4)=0$$

$$x=-9 \quad x=4$$



b. Given: AY = 12

YC = 8

BC=XY+4

Find: XY $= 6$

$$\frac{12}{20} = \frac{x}{x+4}$$

$$12x+48 = 20x$$

$$48 = 8x$$

$$6 = x$$