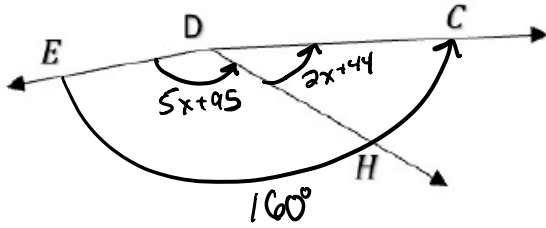


1. Find  $x$  if  $m\angle CDH = 2x + 44$ ,  $m\angle CDE = 160^\circ$  and  $m\angle HDE = 5x + 95$



$$m\angle EDH + m\angle HDC = m\angle EDC$$

$$(5x + 95) + (2x + 44) = 160$$

$$7x + 139 = 160$$

$$7x = 21$$

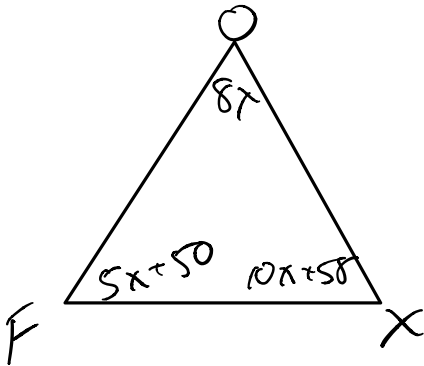
$$x = 3$$

2. Support the conclusion with a valid reason

Given: B is between A and C  
Conclusion:  $AB + BC = AC$

SEGMENT ADDITION POSTULATE

3. Find the value of  $x$ . Given  $\triangle FOX$ , with  $m\angle F = 5x + 50$ ,  $m\angle O = 8x$  and  $m\angle X = 10x + 58$



$$m\angle F + m\angle O + m\angle X = 180$$

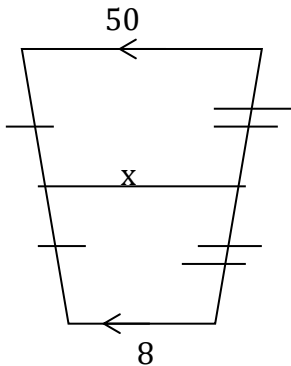
$$(5x + 50) + (8x) + (10x + 58) = 180$$

$$23x + 108 = 180$$

$$23x = 72$$

$$x = \frac{72}{23}$$

4. Given the quadrilateral is a trapezoid, find the value of  $x$



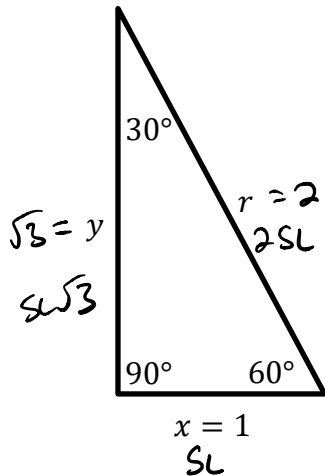
$$\text{Median} = \frac{1}{2}(b_1 + b_2)$$

$$x = \frac{1}{2}(50 + 8)$$

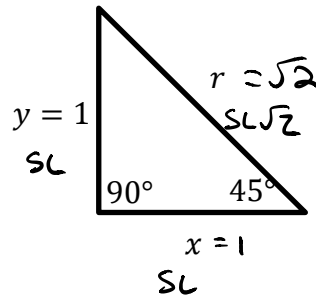
$$x = \frac{1}{2}(58)$$

$$x = 29$$

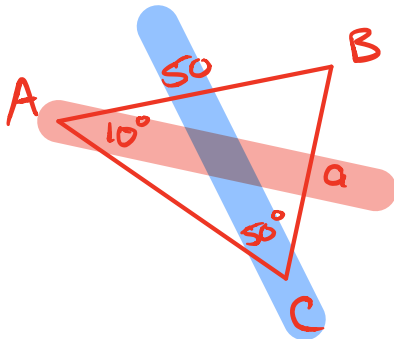
5. a. Find the value of y and r.



b. Find the value of x and r.



6. Pamela purchases a triangular plot of land. She decides to plant a tree on each corner (vertex) of her land. She plants an apple tree on one corner, a banana tree on another corner, and a coconut tree on the final corner. The apple tree is 50' from the banana tree. At the apple tree, the sides of the property form a 10° angle. At the coconut tree, the sides of the property form a 50° angle. How far is the banana tree from the coconut tree? (Make a drawing, write the equation, solve)



$$\frac{\sin(50^\circ)}{50} = \frac{\sin(10^\circ)}{a}$$

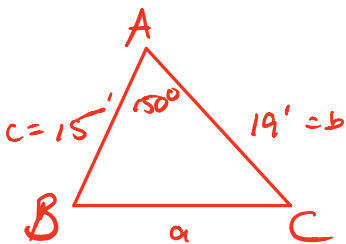
$$a \cdot \sin(50^\circ) = 50 \sin(10^\circ)$$

$$a = \frac{50 \sin(10^\circ)}{\sin(50^\circ)}$$

$$a \approx 11.33$$

The banana tree is about 11.33 feet from the coconut tree.

7. George is not very talented. He made a stepladder using his wood shop. When he sets the ladder up, one side is 15' and the other is 19'. The angle formed by the two sides is 150°. How far apart are the feet of the two sides. (Make a drawing, write the equation, solve)



$$a^2 = b^2 + c^2 - 2bc \cdot \cos(\angle A)$$

$$a^2 = (19)^2 + (15)^2 - 2(19)(15)\cos(150^\circ)$$

$$a^2 = 361 + 225 - 570\cos(150^\circ)$$

$$a^2 = 586 - 570\cos(150^\circ)$$

$$a = \sqrt{586 - 570\cos(150^\circ)}$$

$$a \approx 32.86$$

The feet of the two sides are about 32.86 feet apart.