

$$x^2 + 25 = 3x + 25$$

$$x^2 - 3x - 5y + 25 = 0$$

$$x^2 + 25 + 12x + 10y = 180$$

$$x^2 + 12x + 10y - 155 = 0$$

$$12x + 10y + 3x + 5y = 180$$

$$15x + 15y = 180$$

$$x + y = 12$$

$$y = 12 - x$$

$$x^2 - 3x - 5(12 - x) + 25 = 0$$

$$x^2 - 3x - 60 + 5x + 25 = 0$$

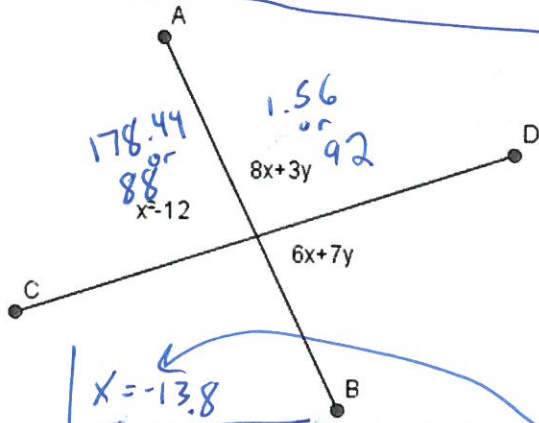
$$x^2 + 2x - 35 = 0$$

$$(x + 7)(x - 5) = 0$$

$$x = -7, 5$$

$x = -7$	$x = 5$
$y = 12 - (-7)$	$y = 12 - 5$
$y = 19$	$y = 7$
$(-7, 19)$	$(5, 7)$

Both Answers Work!



$$x^2 - 12 + 8x + 3y = 180$$

$$x^2 + 8x + 3y - 192 = 0$$

$$x^2 - 12 = 6x + 7y$$

$$x^2 - 6x - 7y - 12 = 0$$

$$8x + 3y + 6x + 7y = 180$$

$$14x + 10y = 180$$

$$10y = 180 - 14x$$

$$y = 18 - \frac{7x}{5}$$

$$x^2 + 8x + 3(18 - \frac{7x}{5}) - 192 = 0$$

$$x^2 + \frac{19x}{5} - 138 = 0$$

$$5x^2 + 19x - 690 = 0$$

$$x = 10, -13.8$$

Quadratic Formula

$x = 10$

$$10^2 - 12 + 8(10) + 3y = 180$$

$$100 - 12 + 80 + 3y = 180$$

$$3y = 12$$

$$y = 4$$

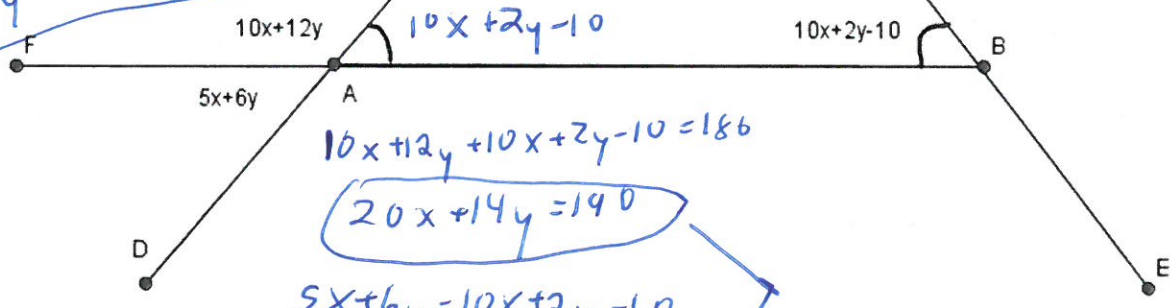
$x = -13.8$

$$178.44 + 8(-13.8) + 3y = 180$$

$$3y = 111.96$$

$$y = 37.32$$

Both Answers Work.



$$10x + 12y + 10x + 2y - 10 = 186$$

$$20x + 14y = 190$$

$$5x + 6y = 10x + 2y - 10$$

$$10 = 5x - 4y$$

$$10 = 5x - 4(5)$$

$$10 = 5x - 20$$

$$30 = 5x$$

$$\frac{30}{5} = \frac{5x}{5}$$

$$6 = x$$

$$20x + 14y = 190$$

$$-20x + 16y = -40$$

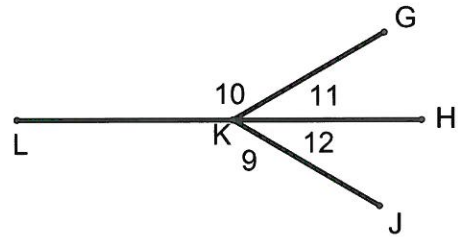
$$30y = 150$$

$$y = 5$$

8. (13 pts) Fill in the blanks to the proof below.

Given: KH bisects $\angle GKJ$

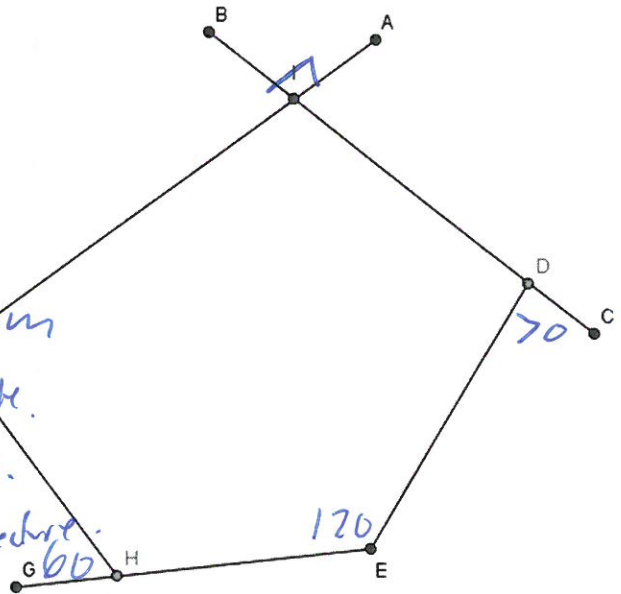
Prove: $\angle 9 \cong \angle 10$



Statements	Reasons
KH bisects $\angle GKJ$	Given
$\angle 11 \cong \angle 12$	Definition of an Angle Bisector
$\angle 9$ & $\angle 12$ are a linear pair $\angle 10$ & $\angle 11$ are a linear pair	Definition of Linear Pair
$m\angle 9 + m\angle 12 = 180$ $m\angle 10 + m\angle 11 = 180$	Linear Pair Postulate
$m\angle 9 + m\angle 12 = m\angle 10 + m\angle 11$	Transitive Property
$m\angle 9 + m\angle 12 = m\angle 10 + m\angle 12$	Substitution
$m\angle 9 = m\angle 10$	Subtraction POE

Given: $\angle BIA = 90^\circ$, $\angle CDE = 70^\circ$, $\angle GHF = 60^\circ$, $\angle E = 120^\circ$

Prove: $\angle F = 100^\circ$



Statement	Reason
$\angle BIA = 90^\circ$, $\angle CDE = 70^\circ$, $\angle GHF = 60^\circ$, $\angle E = 120^\circ$	Given
$\angle FID = 90^\circ$	Vertical Angles Theorem
$\angle EDB = 110^\circ$	Linear Pair Postulate.
$\angle EHF = 120^\circ$	Linear Pair Postulate.
$90^\circ + 110^\circ + 120^\circ + 120^\circ + F = 540$	Polygon Sum Conjecture
$m\angle F = 100$	Subtraction Property of Equality