

Name: AK

Period: \_\_\_\_\_ Date: \_\_\_\_\_

### 2.5 Proof Practice and Extra Review

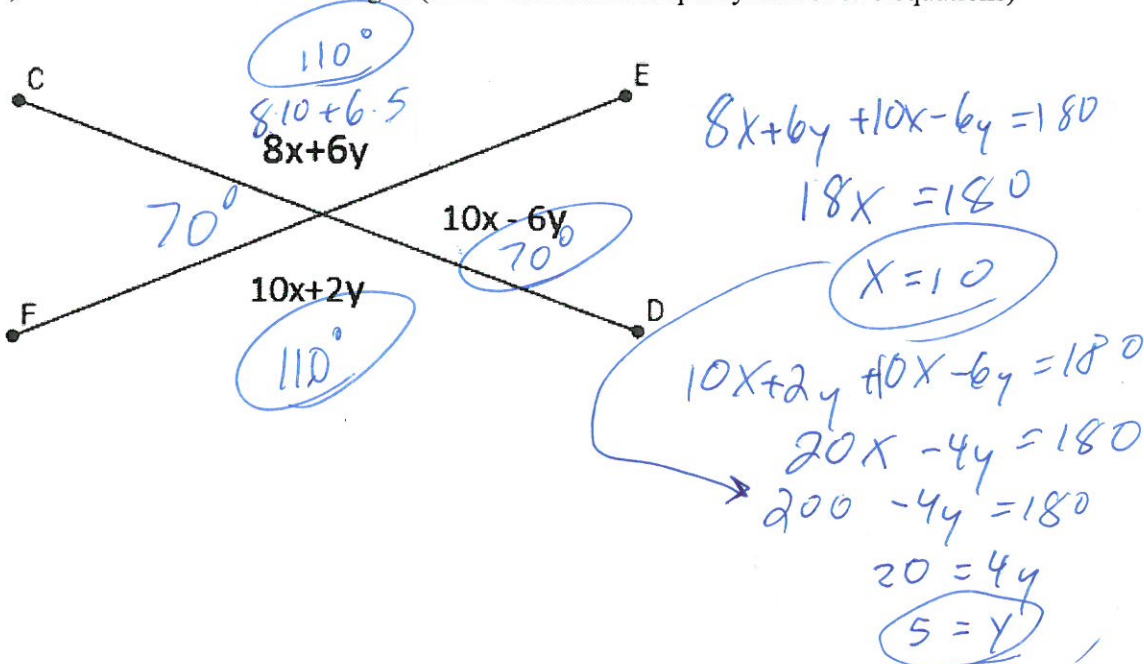
1) Solve for x and write an algebraic proof for the equation.

$$\begin{aligned} \frac{1}{2}(4x + 10) &= 5 - 3x && \text{Given} \\ 2x + 5 &= 5 - 3x && \text{Distributive Property} \\ 2x &= -3x && \text{Subtraction POE} \\ 5x &= 0 && \text{Addition POE} \\ x &= 0 && \text{Division POE} \end{aligned}$$

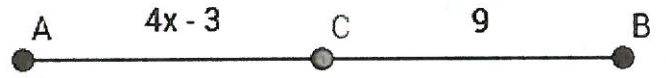
2) Solve for x and write an algebraic proof for the equation.

$$\begin{aligned} \frac{1}{3}x + 1 &= -\frac{1}{3}x - 8 && \text{Given} \\ \frac{2}{3}x + 1 &= -8 && \text{Addition POE} \\ \frac{2}{3}x &= -9 && \text{Subtraction POE} \\ 2x &= -27 && \text{Multiplication POE} \\ x &= -\frac{27}{2} && \text{Division POE} \end{aligned}$$

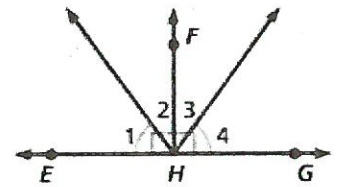
3) Find the measure of each angle. (Hint: You must set up a system of two equations)



4. Given C is a midpoint, prove  $x = 3$ .



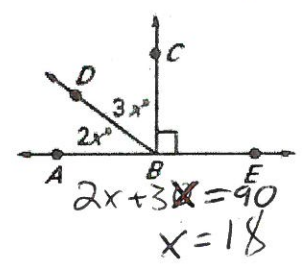
Statements	Reasons
C is a Midpoint	Given
$AC = CB$	Definition of Midpoint
$4x - 3 = 9$	Substitution
$4x = 12$	Addition POE
<del>~~~~~</del>	<del>~~~~~</del>
$x = 3$	Division Property of Equality



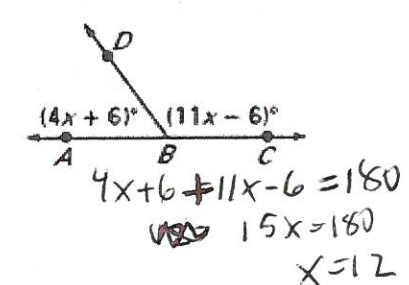
5. Given  $m\angle 1 = m\angle 4$  and  $\overline{EG} \perp \overline{FH}$ , prove  $m\angle 2 = m\angle 3$ .

Statements	Reasons
$m\angle 1 = m\angle 4$	Given
$\overline{EG} \perp \overline{FH}$	Given
$m\angle EHF = 90^\circ, m\angle FHG = 90^\circ$	Definition of Perpendicular
$m\angle EHF = m\angle FHG$	Transitive Property
$m\angle 1 + m\angle 2 = m\angle 3 + m\angle 4$	Substitution
$m\angle 1 + m\angle 2 = m\angle 3 + m\angle 1$	Substitution
$m\angle 2 = m\angle 3$	Subtraction POE

6.  $x = 18$   
 $m\angle ABD = 36^\circ$   
 $m\angle DBC = 54^\circ$



$x = 12$   
 $m\angle ABD = 54^\circ$   
 $m\angle DBC = 126^\circ$



$x = 10$   
 $m\angle ABD = 101^\circ$   
 $m\angle DBC = 79^\circ$

