Name: _Krey_ Hr. _____

In class Questions:

Two angles are complementary. The measure of one angle is 21 more than twice the measure of the other angle. Set up TWO equations to represent this information and then find the measures of the angles using correct units on your final answers.

$$\angle 1 + \angle 2 = 90°$$
$$\angle 1 = 2 \cdot \angle 2 + 21$$

$$2 \cdot \angle 2 + 21 + \angle 2 = 90°$$
$$3 \cdot \angle 2 + 21 = 90$$
$$3 \cdot \angle 2 = 69$$
$$\boxed{\angle 2 = 23°}$$
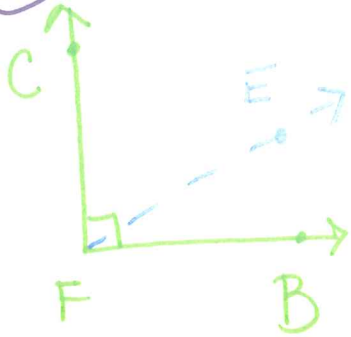$$\angle 1 = 2 \cdot 23 + 21$$
$$\boxed{\angle 1 = 67°}$$

#s 2-5

a.) Draw the picture if one is not given to you.
b.) Set up your geometry first and justify you set up.
c.) Justify all steps.
Note* You may not change or rename any angles

2 $\overrightarrow{FC} \perp \overrightarrow{FB}$. If point E lies in the interior of $\angle CFB$, find x such that $\angle CFE = 8x - 2$ and $\angle EFB = 2x + 13$.

(a)

(b) $\angle CFE + \angle EFB = 90$ def of $\perp$

(c) $8x - 2 + 2x + 13 = 90$
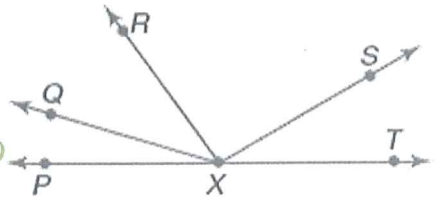
$$\boxed{x = 7.9}$$

3. If $\angle SXT = 3a - 4$, $\angle RXS = 2a + 5$, $\angle RXT = 111°$. Find a and the measure of $\angle RXS$.

(b.) $\angle RXT = \angle RXS + \angle SXT$
angle addition

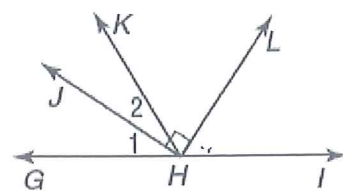$$111° = 2a + 5 + 3a - 4$$
$$\boxed{22 = a}$$
$$\angle RXS = 2(22) + 5$$
$$\boxed{m\angle RXS = 49°}$$

For # 4 & 5

$\overrightarrow{HL}$ is an angle bisector of <KHI, $\overrightarrow{HJ}$ bisects <KHG and $\overrightarrow{HJ} \perp \overrightarrow{HL}$.

You may not change or rename any angles

○ : $KHG = 70°$, and $< 1 = 3d + 2$. Find d.

$\angle 1 \cong \angle 2$ def of < bisector

$\angle 1 + \angle 2 = \angle KHG$ < addition
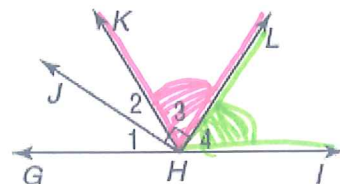
$\angle 1 + \angle 1 = \angle KHG$ Substitution

$3d + 2 + 3d + 2 = 70$

$6d + 4 = 70$

$6d = 66$

$\boxed{d = 11}$

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5. Find m <KHL if $< IHL = 2x^2 - 17x$ and $< KHL = 6x^2 + 15$.

$< IHL \cong < KHL$ def of < bisector

$2x^2 - 17x = 6x^2 - 15$

$0 = 4x^2 + 17x + 15$

$(x + \frac{12}{4})(x + \frac{5}{4}) = 0$

$(x + 3)(4x + 5) = 0$

$\boxed{x = -3}$ $\boxed{x = \frac{-5}{4}}$

$\boxed{1.25}$

check $x = -3$

$< IHL = 2(-3)^2 - 17(-3) = 69°$

$\angle KHL = 6(-3)^2 + 15 = 69°$

yes!

Check $x = 1.25$

$< IHL = 2(1.25)^2 - 17(1.25)$
$= 24.375°$

$< KHL = 6(1.25)^2 + 15$
$= 24.375°$

yes!

$< KHL = 69°$

OR

$< KHL = 24.375°$