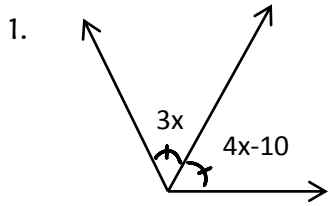Name: **Key**

Set up the equations you would use to solve for x only! DO NOT SOLVE!

1.

3x

4x-10
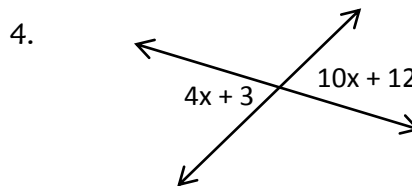
Equation: ___$3x = 4x - 10$___

2.
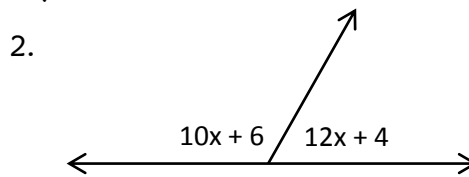
10x + 6 / 12x + 4

Equation: ___$10x + 6 + 12x + 4 = 180$___

3.

88°

10x

4x

Equation: ___$10x + 4x = 88$___

4.

10x + 12

4x + 3
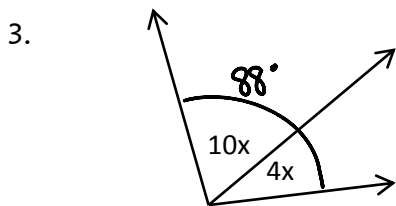
Equation: ___$4x + 3 = 10x + 12$___

5.

14x + 8

6x + 4
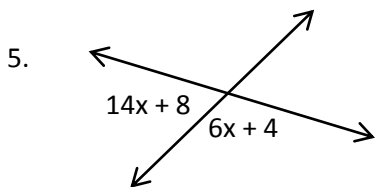
Equation: ___$14x + 8 + 6x + 4 = 180$___

6.

10x   12

30

Equation: ___$10x + 12 = 30$___

7.
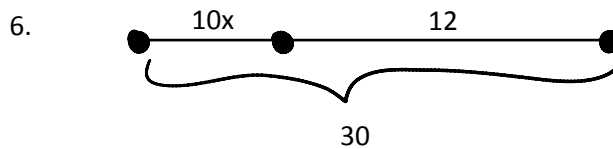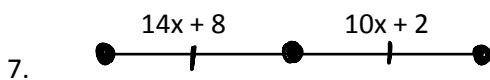
14x + 8   10x + 2

Equation: ___$14x + 8 = 10x + 2$___

8. $\overrightarrow{MQ}$ bisects <AMP, <AMP = 40x + 10, <AMQ = 6x − 2

A

40x+10

6x-2

Q

P

M
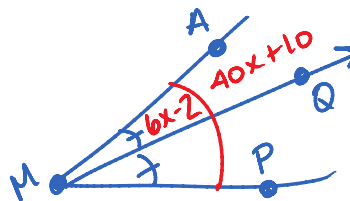
Equation: ___$6x - 2 + 6x - 2 = 40x + 10$___

Now... Please solve the problems completely!

9. A supplement of an angle is 3 times the complement of the angle. Find the angle.

$$180 - x = 3(90 - x)$$
$$180 - x = 270 - 3x$$
$$2x = 90$$
$$\boxed{x = 45}$$

10. An angle's measure is 6 degrees more than three times the measure of the complement. Find the measure of the complement.

$$x = 6 + 3(90 - x)$$
$$x = 6 + 270 - 3x$$
$$x = 276 - 3x$$
$$4x = 276$$
$$x = 69$$

$$\begin{array}{r} 90 \\ -69 \\ \hline \boxed{21} \end{array}$$

11. The measure of two supplementary angles are in a ratio of 7:5. What is the value of the smaller angle?

$$7x + 5x = 180$$
$$12x = 180$$
$$x = 15$$
$$5(15) = \boxed{75°}$$

12. An angle measures 12 degrees less than three times its supplement. Find the measure of the angle.

$$x = 3(180 - x) - 12$$
$$x = 540 - 3x - 12$$
$$x = 528 - 3x$$
$$4x = 528$$
$$\boxed{x = 132}$$

13. An angle is its own complement. Find the Measure of the supplement of the angle.

$$x = 90 - x$$
$$2x = 90$$
$$\boxed{x = 45}$$
$$180 - 45 = \boxed{135}$$

14. Angle DEF and Angle FEG are supplementary. m<DEF = 9x + 1, m<FEG = 8x + 9. Find both angles.

$$9x + 1 + 8x + 9 = 180$$
$$17x + 10 = 180$$
$$17x = 170$$
$$\boxed{x = 10}$$

$$m\angle DEF = \boxed{91°}$$
$$m\angle FEG = \boxed{89°}$$