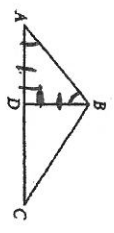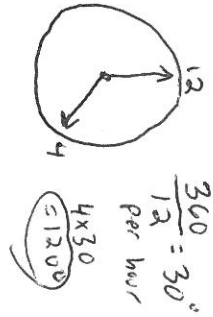Name: _____ Period: _____ Date: _____

1.5 Measuring and Constructing Angles
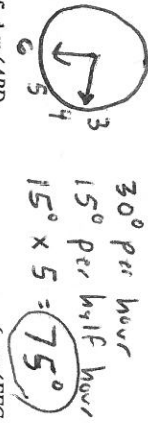All angle measures are in degrees.

1. Two angles are _Congruent_ when they have the same measure.
2. Mark the figure with the given information.

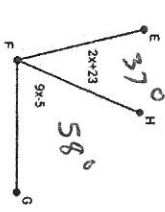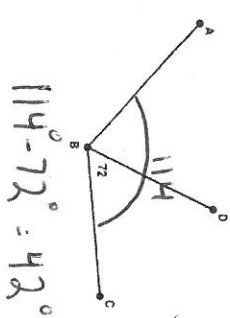$m\angle ADB = 90°$, $AD = BD$, $\angle DAB \cong \angle DBA$

3. What is the measure of the angle made by the hands of a clock at 4 o'clock?

$\frac{360}{12} = 30°$ per hour

4×30

$= 120°$

4. What is the measure of the angle made by the hands of a clock at 3:30?

$30°$ per hour
$15°$ per half hour
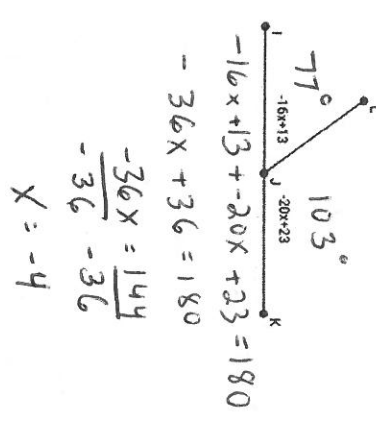$15 \times 5 = 75°$

5. $m\angle ABC = 114$, find $m\angle ABD$.

$114 - 72 = 42°$

6. $m\angle EFG = 95$. Find $m\angle EFH$ and $m\angle HFG$.

$2x + 23 + 9x - 5 = 95$
$11x + 18 = 95$
$\quad\quad -18 \quad -18$
$\frac{11x}{11} = \frac{77}{11}$
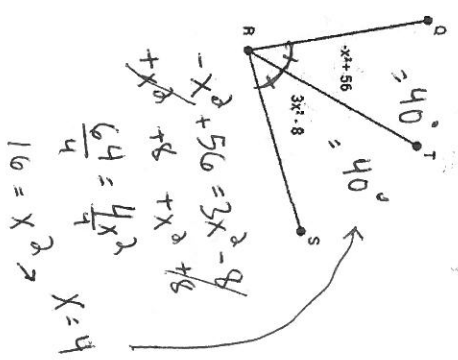$x = 7°$

7. Solve for x, $\frac{2(x-3)}{2} = \frac{12}{2}$

$|x-3| = 6$

$x - 3 = 6 \quad\quad x - 3 = -6$
$x = 9 \quad\quad\quad x = -3$

8. $\angle IJK$ is a straight angle. Find $m\angle IJL$ and $m\angle LJK$.

$-16x + 13 + -20x + 23 = 180$
$-36x + 36 = 180$
$\quad\quad -36 \quad\quad -36$
$\frac{-36x}{-36} = \frac{144}{-36}$
$x = -4$

9. $\angle MNO = 90$. Find $m\angle MNP$ & $m\angle ONP$.

$15x - 43 + 8x + 18 = 90$
$23x - 25 = 90$
$\frac{23x}{23} = \frac{115}{23}$
$x = 5$
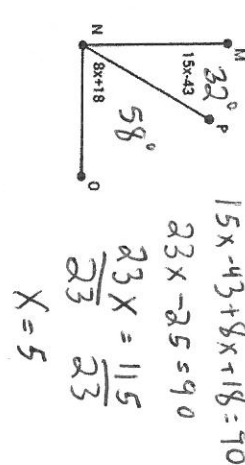
10. $\overline{RT}$ is an angle bisector. Find $m\angle QRS$.

$-x^2 + 56 = 3x^2 - 8$
$+x^2 \quad\quad +x^2$
$\frac{64}{4} = \frac{4x^2}{4}$
$16 = x^2$
$x = 4$

11. In $\angle ABC$, $\overrightarrow{BX}$ is in the interior of the angle, $m\angle ABX$ is 12 more than 4 times $m\angle CBX$, and $m\angle ABC = 92$.
a) Draw a diagram of the situation.
b) Find $m\angle ABX$ and $m\angle CBX$.

$P = 12 + 4q$
$P + q = 92$
$12 + 4q + q = 92$
$\quad -12 \quad\quad\quad -12$
$\frac{5q}{5} = \frac{80}{5}$
$q = 16 \quad\quad P = 76$
$m\angle ABX = 16° \quad m\angle XBC = 76°$
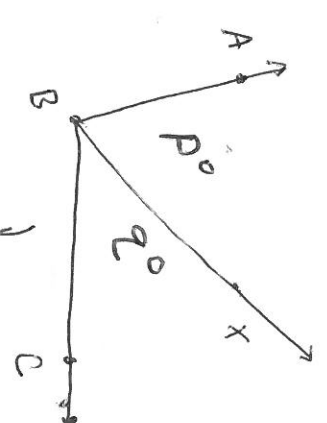
12. Is it possible for a straight angle to be made up of two obtuse angles? Explain why or why not.