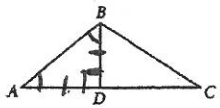
Name:_____ Period:_____ Date:_____

1.5 Measuring and Constructing Angles

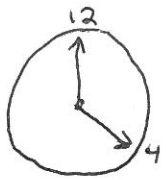
All angle measures are in degrees.

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

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



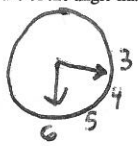
3. What is the measure of the angle made by the hands of a clock at 4 o'clock?



$\frac{360}{12} = 30°$ per hour

$4 \times 30 = 120°$

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

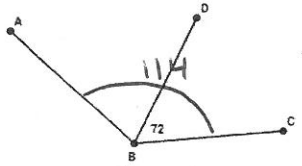


30° per hour

15° per half hour

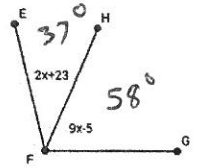
15° × 5 = 75°

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



$114° - 72° = 42°$

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



$2x + 23 + 9x - 5 = 95$

$11x + 18 = 95$

$-18 \quad -18$

$\frac{11x}{11} = \frac{77}{11}$

$x = 7°$

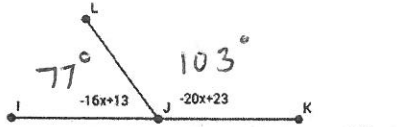
7. Solve for x. $\frac{2|x-3|}{2} = \frac{12}{2}$

$|x-3| = 6$

$x - 3 = 6$ $\qquad$ $x - 3 = -6$

$x = 9$ $\qquad$ $x = -3$

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



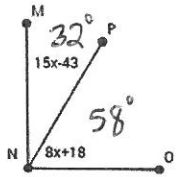
$-16x + 13 + -20x + 23 = 180$

$-36x + 36 = 180$

$\frac{-36x}{-36} = \frac{144}{-36}$

$x = -4$

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



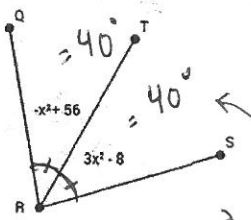
$15x - 43 + 8x + 18 = 90$

$23x - 25 = 90$

$\frac{23x}{23} = \frac{115}{23}$

$x = 5$

10. $\overline{RT}$ is an angle bisector. Find $m\angle QRS$.



$-x^2 + 56 = 3x^2 - 8$

$+x^2 \quad +8 \quad +x^2 \quad +8$

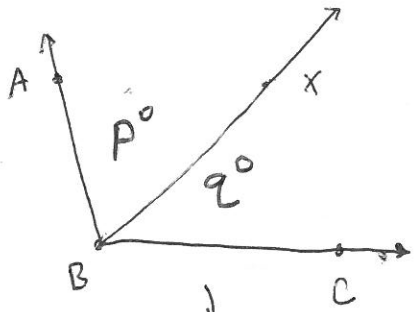
$\frac{64}{4} = \frac{4x^2}{4}$

$16 = x^2$ $\qquad$ $x = 4$

11. In $\angle ABC$, $\overline{BX}$ 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 $m\angle CBX$.



12. Is it possible for a straight angle to be made up of two obtuse angles? Explain why or why not.

$p = 12 + 4q$

$p + q = 92$

$12 + 4q + q = 92$

$-12 \qquad -12$

$5q = 80$

$q = 16$ $\qquad$ $p = 76$

$m\angle ABX = 16°$ $\qquad$ $m\angle XBC = 76°$