Name _____Key_____ Date _____ Pd __

CYU 1.5 Measuring & Constructing Angles AND 1.6 Describing Pairs of Angles

CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
Adjacent & nonadjacent angles		7, 8	
Complementary & Supplementary angles			
Linear Pair	6		
Vertical Angles	5		
Interior/Exterior of an Angle	1		
Naming & Classifying Angles	2, 3, 4, 5		
Angle Bisectors		8	

___A, E___ 1. Name all the points in the interior of ∠ SNB.

___∠FNS___ 2. Give another name for ∠ SNF.

___NB NS___ 3. Name the sides of ∠ BNS.

___N___ 4. Name the vertex of ∠ TNB.

___∠FNT & ∠SNB___ 5. Name a pair of vertical angles.

___∠FNT & ∠TNB___ 6. Name a pair of angles that are a linear pair.

Equation & answer   Reason

	Equation & answer	Reason
7. m ∠ PQS = 6x° m ∠ SQR = 2x° m ∠ PQR = 24° **Find the m ∠ SQR** **and m ∠ PQS**	$m\angle PQS = m\angle PQR + m\angle RQS$ $6x = 24 + 2x$ $4x = 24$ $x = 6$ $m\angle PQS = 6(6) = 36°$ $m\angle SQR = 2(6) = 12°$ $m\angle PQR = 24°$	Angle Addition Postulate
8. If ∠PQS is bisected and m ∠ PQR = (x + 14)° m ∠ RQS = (3x - 18)° **Find m ∠ PQS**	$m\angle PQR = m\angle RQS$ $x + 14 = 3x - 18$ $32 = 2x$ $16 = x$ $2(m\angle PQR) = m\angle PQS$ $2(16+14) = 2(30)$ $m\angle PQS = 60°$	m∠ Bisect means cut in half
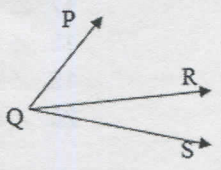
Give the measure of the complement and supplement of each angle, if possible.

9. m ∠ A = 40°   90 - 40   180 - 40   C = 50°   S = 140°

10. m ∠ C = 102°   180 - 102   C = not possible   S = 78°

11. $m\angle 1 = (9x - 12)°$, $m\angle 3 = (4x + 38)°$ **Find the measure of $\angle 1$**	$m\angle 1 = m\angle 3$ $9x - 12 = 4x + 38$ $5x = 50$ $x = 10$ $m\angle 1 = 9(10) - 12$ $= 90 - 12$ $\boxed{m\angle 1 = 78°}$	vertical angles are always congruent $\angle 1 \cong \angle 3$
12. $m\angle 1 = (\frac{1}{2}x + 18)°$, $m\angle 2 = (\frac{13}{2}x + 8)°$ **Find the $m\angle 4$.** $m\angle 4 = m\angle 2$: vertical angles	$m\angle 1 + m\angle 2 = 180°$ $2[(\frac{1}{2}x + 18) + (\frac{13}{2}x + 8) = 180]2$ $x + 36 + 13x + 16 = 360$ $14x + 52 = 360$ $\frac{13(22)}{2} + 8$ $14x = 308$ $x = 22$ $\boxed{m\angle 4 = 151°}$	Linear pair means angles are always supplementary.
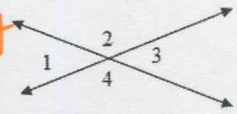
Set up an equation and solve the following.

13. The <u>measure of an angle</u> is <u>twice the measure of its complement.</u> Find the measure of the angles.
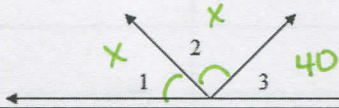
$x = 2(90 - x) \rightarrow 3x = 180$
$x = 180 - 2x \qquad x = 60$

$\boxed{60°, 30°}$

14. <u>The measure of the supplement of an angle</u> is 30 more than <u>twice the measure of the angle</u>. Find the measure of the angles.

$(180 - x) = 2x + 30$
$150 = 3x$
$50 = x$

$\boxed{50°, 130°}$

Equation & answer   Reason

15. $m\angle 1 = 4x°$, $m\angle 2 = 7x°$, $m\angle 3 = 6x°$ **Find the measure of each $\angle$.**	$m\angle 1 + m\angle 2 + m\angle 3 = 180°$ $m\angle 3 = \frac{1080°}{17}$ $4x + 7x + 6x = 180$ $17x = 180$ $m\angle 1 = \frac{720°}{17}$ $x = \frac{180}{17}$ $m\angle 2 = \frac{1260°}{17}$	Supplementary angles add to 180°
16. $m\angle 1 = m\angle 2$, $m\angle 3 = 40°$ **Find the $m\angle 1$ and $m\angle 2$.**	$m\angle 1 + m\angle 2 + m\angle 3 = 180$ $x + x + 40 = 180$ $2x = 140$ $x = 70$ $\boxed{m\angle 1 = 70° \quad m\angle 2 = 70°}$	supplementary angles add to 180° bisected & too.

For each angle, classify it by <u>appearance</u> as acute, right, obtuse or straight.

17. $\angle$ CBD = acute
18. $\angle$ EBC = Right
19. $\angle$ GBD = obtuse
20. $\angle$ GBF = acute
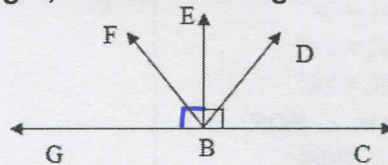
CYU Reflection: *How far can you go: basic, intermediate, or advanced?*
Rate your mastery level!
How confident are you with the skills this CYU covered? Circle the score you would give yourself.

1 2	3 4 5	6 7	8
Basic	Intermediate	Advanced	Solved ALL!