Geometry   Name: **Key** ☺
Chapter 1 Study Guide   Date: _____ Period: _____

1.1 Identify, name, and draw points, lines, segments, rays & planes. Apply basic facts about points, lines & planes.

Rate Your Understanding: 1 (Yikes!)   2   3   4   5 (I got this!)

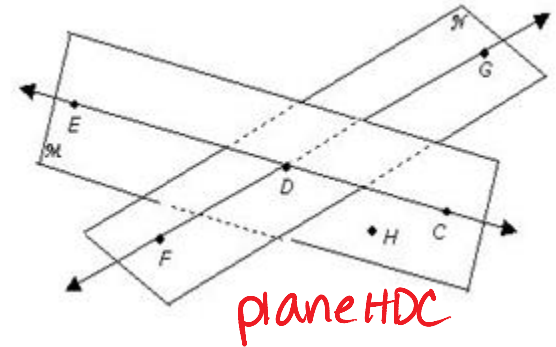1) Use the figure below to name the following figures:

answers will vary

$\overleftrightarrow{DB}$ a) A line

$\overrightarrow{OE}$ b) A ray

$\overrightarrow{OD}, \overrightarrow{OB}$ c) Opposite rays

$\angle DOE, \angle EOA$ d) Only adjacent angles
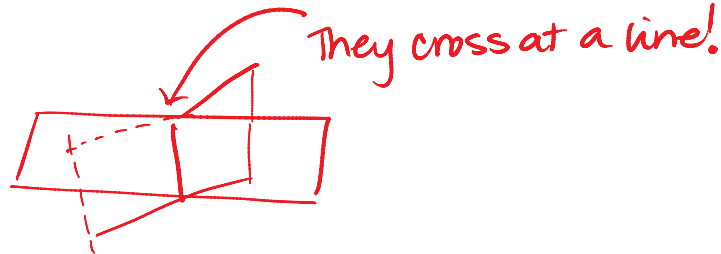
$\angle DOC, \angle COB$ e) Adjacent and linear pair angles

2) Identify the plane containing D, E, and C.

plane HDC

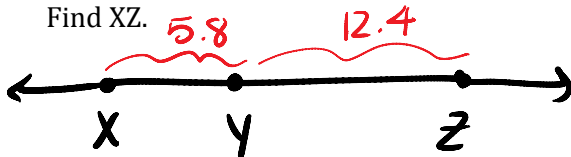3) Circle Always, Sometimes, or Never. Draw a picture to support your answer.

If two planes cross, then they cross at a point.

They cross at a line!

1.2 Use length and midpoint of a segment to solve algebraic problems.

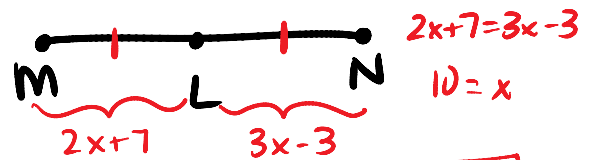Rate Your Understanding: 1 (Yikes!)   2   3   4   5 (I got this!)

4) Y is between X and Z, XY = 5.8 and YZ = 12.4.
   Find XZ.

$XZ = 5.8 + 12.4$

$\boxed{XZ = 18.2}$

5) L is the midpoint of $\overline{MN}$, ML = 2x + 7,
   and LN = 3x – 3. Find ML, LN, and MN.

$2x+7 = 3x-3$

$10 = x$

$\boxed{\begin{array}{l} ML = 27 \\ LN = 27 \\ MN = 54 \end{array}}$

6) Circle Always, Sometimes, or Never. Draw a picture to support your answer.

If I is the midpoint of $\overline{MN}$, then I, M, and N are collinear.

← The points will always have to lie on the same line.

1.3 Name and classify angles. Find the measure of the angle using interior and angle bisector.
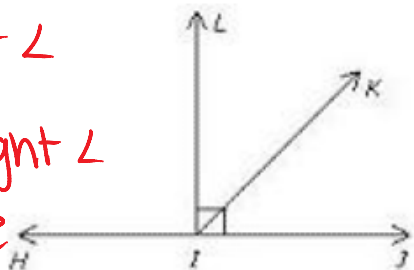
Rate Your Understanding: 1 (Yikes!)   2   3   4   5 (I got this!)

7) Classify the following angles using the diagram below:
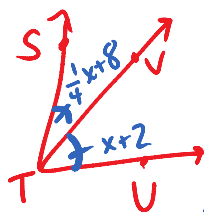
a) $\angle LIJ$ = Right $\angle$

b) $\angle HIJ$ = straight $\angle$

c) $\angle KIL$ = acute $\angle$

8) $\overline{TV}$ bisects $\angle STU$, $m\angle STV = \left(\frac{1}{4}x+8\right)^\circ$

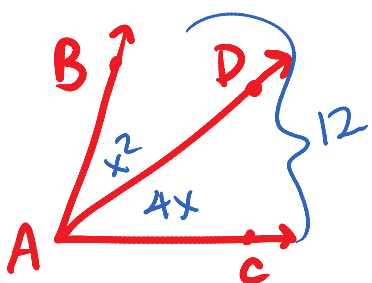and $m\angle UTV = (x+2)^\circ$. Find $\angle STU$.

$x+2 = \frac{1}{4}x+8$

$\frac{3}{4}x = 6$

$x = 8$

$m\angle STU = 20^\circ$

9) D is in the interior of angle BAC. $\angle BAD = x^2$, $\angle CAD = 4x$, and $\angle BAC = 12$. Find x.

$x^2 + 4x = 12$

$x^2 + 4x - 12 = 0$

$(x+6)(x-2) = 0$

$x = -6 \quad \boxed{x = 2}$

If $x = -6$, then $m\angle BAD = (-6)^2 = 36^\circ$
& $m\angle DAC = 4(-6) = -24^\circ$

If $x = 2$, then $m\angle BAD = 4^\circ$
$m\angle DAC = 4(2) = 8^\circ$

1.4 Identify adjacent, vertical, complementary, and supplementary angles. Find measures of pairs of angles.

Rate Your Understanding: 1 (Yikes!)   2   3   4   5 (I got this!)

10) $m\angle F = 109^\circ$. Find the measure of the supplement of $m\angle F$.

$180 - 109$

$\boxed{71^\circ}$

11) $m\angle K = (6x+12)^\circ$. Find the measure of the complement of $\angle K$.

$90 - (6x+12)$

$90 - 6x - 12$

$\boxed{(78-6x)^\circ}$

12) $m\angle ABC = (6x+8)^\circ$ and $m\angle DEF = (12x-8)^\circ$.
If $\angle ABC$ and $m\angle DEF$ are supplementary, find the measure of each angle.

$6x+8 + 12x-8 = 180$

$18x = 180$

$x = 10$

$m\angle ABC = 68^\circ$

$m\angle DEF = 112^\circ$

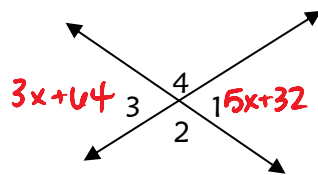13) If $m\angle 1 = 5x+32$ and $m\angle 3 = 3x+64$ find $m\angle 4$.

$3x+64 = 5x+32$

$32 = 2x$

$x = 16$

$180 - m\angle 1 = m\angle 4$

$180 - 112 = m\angle 4$

$\boxed{68^\circ = m\angle 4}$

14) A supplement of an angle is 4 more than three times the complement of the angle. Find the measure of the complement of the angle.

$180 - x = 3(90-x) + 4$

$180 - x = 270 - 3x + 4$
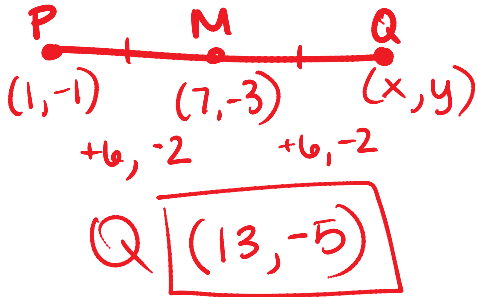
$180 - x = 274 - 3x$

$180 + 2x = 274$

$2x = 94$

$x = 47$

$90 - 47 = \boxed{43^\circ}$

15) M is the midpoint of PQ. P is at (1, -1)
     and M is at (7, -3). Find the coord. of Q.

P ——— M ——— Q

(1,-1)   (7,-3)   (x,y)

+6, -2   +6,-2

Q $(13, -5)$

16) Find the distance of $\overline{PQ}$ with endpoints
     P(1, -1) and Q(7, -3).

$x_1\ y_1$ $x_2\ y_2$

$PQ = \sqrt{(x_1-x_2)^2 + (y_1-y_2)^2}$

$PQ = \sqrt{(1-7)^2 + (-1--3)^2}$

$PQ = \sqrt{(-6)^2 + (2)^2}$
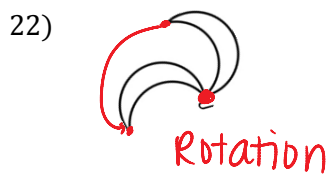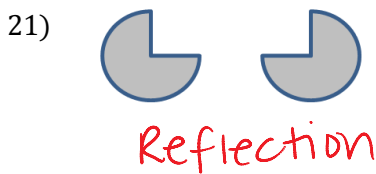
$PQ = \sqrt{36+4}$

$PQ = \sqrt{40} \quad = 2\sqrt{10}$

17) Identify the slope given the points
     (-5, 6) and (-4, 0).

$x_1\ y_1 \qquad x_2\ y_2$

$m = \dfrac{6-0}{-5-4} = \dfrac{6}{-9} = \dfrac{2}{-3}$

$m = \dfrac{2}{-3}$

18) What is the slope of the graph?
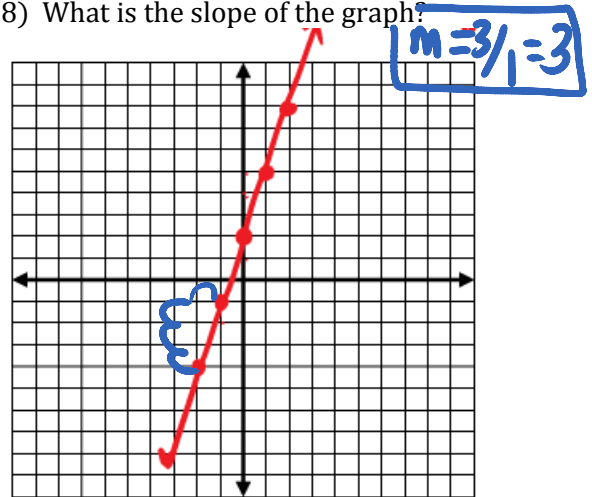
$M = \dfrac{3}{1} = 3$

19) The slope of the line x = -2 is __undefined__

20) The slope of the line y = 4 is __zero__.

Identify the transformation as a reflection, rotation, or translation. Draw all necessary markings to justify.
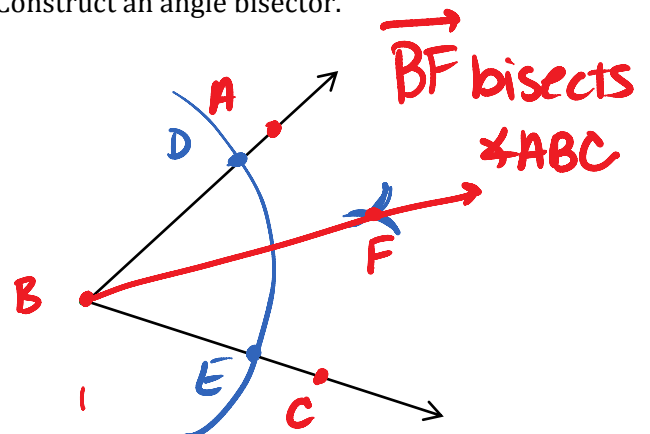
21) Reflection

22) Rotation

23) Translation

24) A figure has vertices at A(-1,4), B(-1,1), and C(3, 1).
    After a transformation, the image of the figure has
    vertices at A'(-1,-4),B'(-1,-1),C'(3,-1). Draw the
    preimage and image. Then identify the transformation.
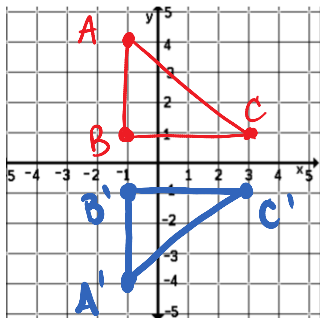
Reflection over the x-axis

25) Construct an angle bisector.

$\overrightarrow{BF}$ bisects ∡ABC

Remember, completing the study guide is not enough practice!
Make sure to look over your notes, homework, and in-class assignments to prepare for the Chapter test!!!