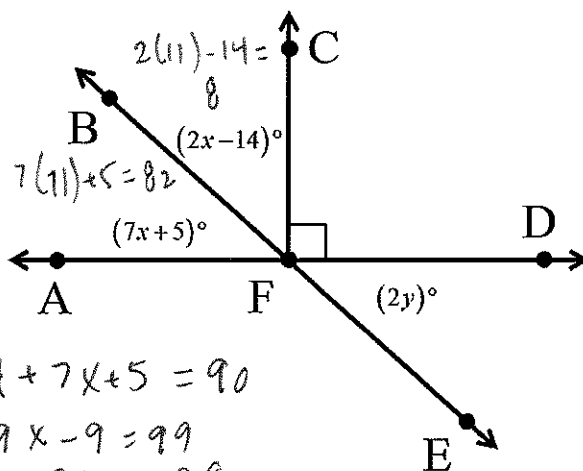Part A: Transformations [G-CO.5]

1. **Select** the type of transformation described by $(x,y) \rightarrow (x-2, y-5)$.

   A) a translation two units down and five units left.

   B) a translation two units right and five units down. ✓ *left*

   C) a dilation of scale 2 followed by a translation five units up.

   (D)) a translation two units left and five units down. ✓ ✓

2. **Select** the description that matches the transformation described by $(x,y) \rightarrow (3x, 3y-5)$. *dilation*

   A) a translation three units left followed by a translation five units down.

   (B)) a dilation of scale factor three followed by a translation five units down. ✓ ✓

   C) a translation three units right followed by a translation five units down.

   D) a dilation of scale factor five followed by a translation three units down.

3. **Select** the transformation notation describing a figure horizontally stretched by a factor of 2 and translated 5 units to the left.

   (A)) $(x,y) \rightarrow (2x-5, y)$

   B) $(x,y) \rightarrow (2x, 2y-5)$

   C) $(x,y) \rightarrow (2x, -5)$?

   D) $(x,y) \rightarrow (x-5, 2y)$

   common misconceptions:
   students often misattribute left or right / up or down with x or y (or invert the direction).

Part B: Lines & Angles [G-CO.9]

4. **Determine** the measure of the indicated angles.

   A) $m\angle AFB =$ _82°_

   B) $m\angle BFC =$ _8°_

   C) $m\angle DFE =$ _82°_

   D) $m\angle AFE =$ _98°_

   2(11)-14 = 8

   7(11)+5 = 82

   $(2x-14)°$

   $(7x+5)°$

   $(2y)°$

   B, C, A, F, D, E

   2x-14 + 7x+5 = 90
   9x - 9 = 90
   9x = 99

Tracy Unified School District – Updated March 17, 2020 – Page 1   *x = 11*

5. Line m is parallel to line n.

Given:

$m\angle 1 = (3x+64)°$

$m\angle 7 = (10x-13)°$

Find...

A) $m\angle 7 =$ __97°__

B) $m\angle 6 =$ __83°__

$3x+64 = 10x-13$

$ -3x \qquad -3x$

$\rule{3cm}{0.4pt}$

$64 = 7x-13$

$ +13 \qquad +13$

$\rule{3cm}{0.4pt}$

$77 = 7x$

$\div 7 \quad \div 7$

$\rule{3cm}{0.4pt}$

$11 = x$

$3x+64$
$33+64$
$97°$
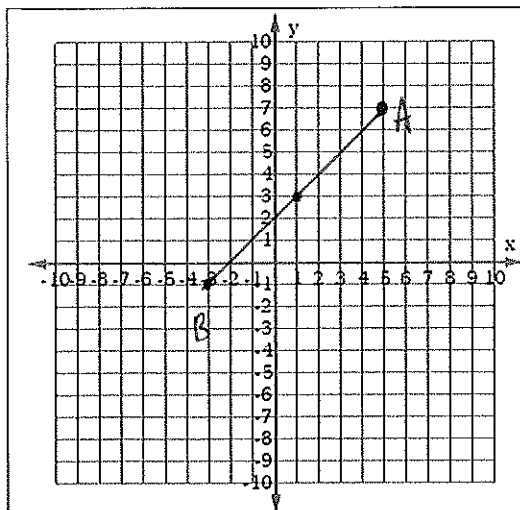
$83°$

$10x-13$
$97°$

$83°$
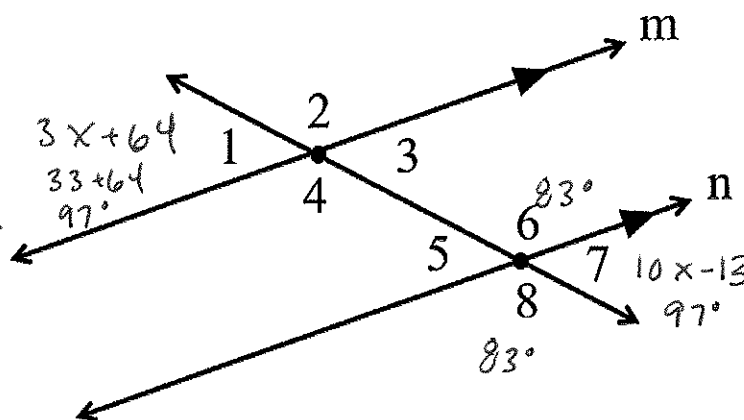
Part C: Constructions [G-CO.12]

6. Use a straight edge and compass to **construct** an angle bisector of $\angle ABC$.
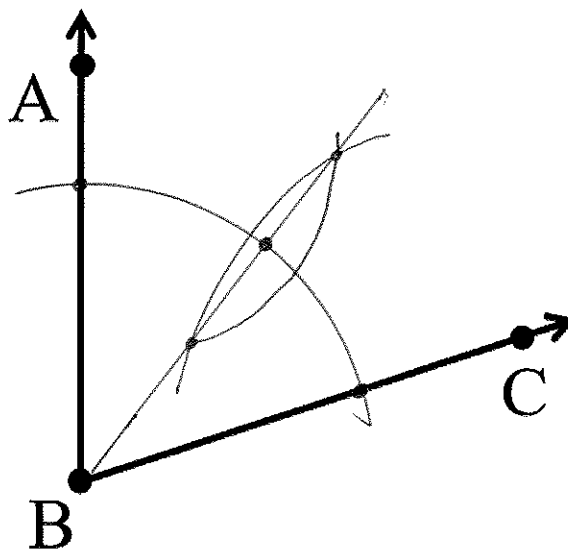
Part D: Distance & Midpoint

7. **Graph** and **determine** both the distance and midpoint between points A(5, 7) and B(-3,-1). **Show** your work.

Distance:

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

$A(5,7) \quad B(-3,-1)$

$x_1\,y_1 \qquad x_2\,y_2$

$d = \sqrt{(-3-5)^2 + (-1-7)^2}$

$d = \sqrt{(-8)^2 + (-8)^2}$

$d = \sqrt{64+64}$

$d = \sqrt{128} = 8\sqrt{2}$

Midpoint:

$M(\,,\,) = \left(\dfrac{x_1+x_2}{2}, \dfrac{y_1+y_2}{2}\right)$

$M(\,,\,) = \left(\dfrac{5+(-3)}{2}, \dfrac{7+(-1)}{2}\right)$

$M(\,,\,) = \left(\dfrac{2}{2}, \dfrac{6}{2}\right)$

$M(\,,\,) = 1, 3)$