Geometry Chapter 1, 2, 3/9 Cumulative Review                    Name _____
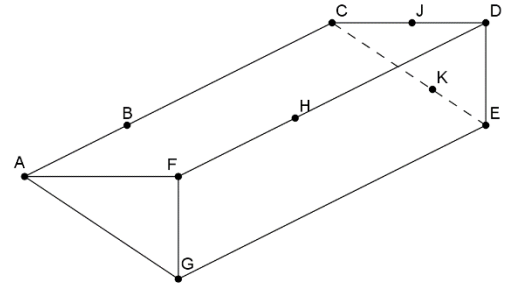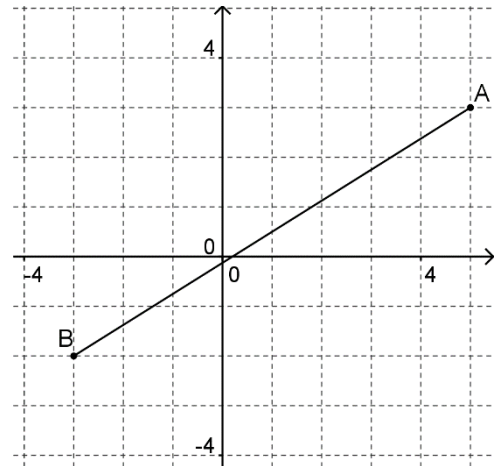
1.    Use the given figure to answer the following questions.
      a.     Name four points that are coplanar

      b.     Name the intersection of plane $KED$ and plane $CAF$.
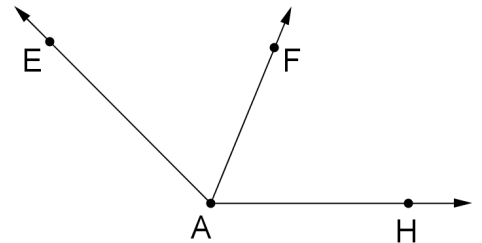
      c.     Name a plane containing point $H$.

2.    Point $O$ is between $H$ and $P$.  $HP = 7x - 2, OP = 4x + 6, OH = 25$.
      Make a sketch of the given information.  Write an equation and solve for $x$.  Determine $HP$.

3.    Use the given diagram to answer the following questions.
      a.     What is the distance between points A and B?
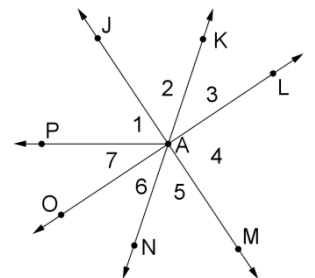
      b.     What is the midpoint of $\overline{AB}$?

4.    In the figure, $\overrightarrow{AF}$ bisects $\angle EAH$.
      If $m\angle EAF = (6x - 7)°$ and $m\angle FAH = (3x + 29)°$, then determine $m\angle EAF$.

5.    Use the given figure to answer the following questions.
      a.     Name an angle supplementary with $\angle PAL$.

      b.     If $m\angle KAM = 130°$, then what does $m\angle 2$ equal?

      c.     Name a pair of vertical angles.

      d.     Name a linear pair of angles.

6.   Two sides of a regular octagon are represented by the expressions $5x + 4$ and $2x + 16$
     a.   Make a sketch of a regular octagon including appropriate marking to indicate it is regular.




     b.   Solve for the value of $x$.




     c.   Determine the side length.


7.   Use the statement below to answer the following questions.
     *A number is even if it is divisible by six.*
     a.   Rewrite the statement as a conditional statement in if-then form.



          Is your statement true or false?  If false, then provide a counterexample.



     b.   Write the converse.



          Is your statement true or false?  If false, then provide a counterexample.



     c.   Write the inverse.



          Is your statement true or false?  If false, then provide a counterexample.



     d.   Write the contrapositive.



          Is your statement true or false?  If false, then provide a counterexample.


8.   *If two angles are complementary, then the sum of the measures of the angles is 90°.*

     a.   Could the statement above be written as a true biconditional?                    Yes or No

     b.   If yes, then write the biconditional statement below.  If no, then provide a counterexample.

9.  Write a proof:
    Given: $m\angle JAK = 37°, m\angle GAK = 92°$
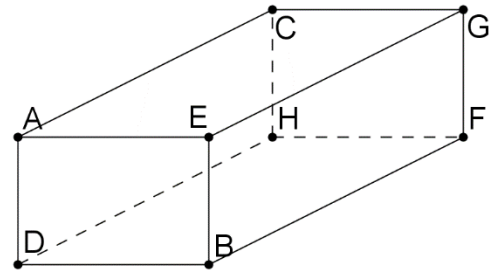    Prove: $\angle GAJ$ is an obtuse angle
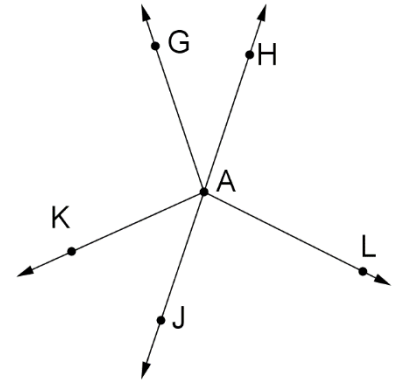
10. Write a proof:
    Given: $SE = LD$
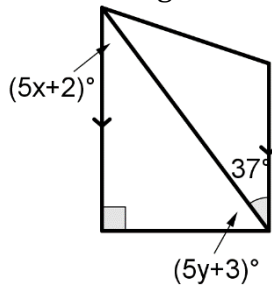    Prove: $SL = ED$

11.    Use the diagram at the right to answer the following questions:

   a.    Name two lines that appear parallel to $\overleftrightarrow{CH}$

   b.    Name two lines that appear perpendicular to $\overleftrightarrow{CH}$

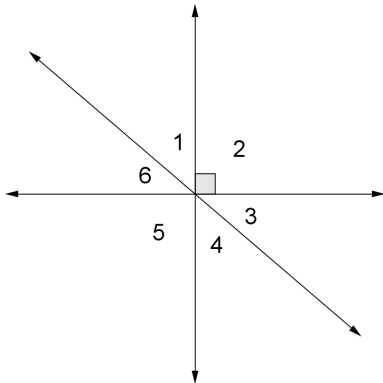   c.    Name two lines that appear skew to $\overleftrightarrow{CH}$
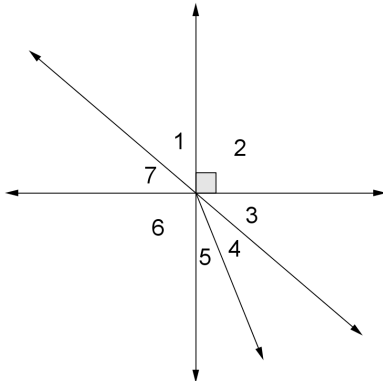
12.    Use the diagram below to solve for $x$ and $y$.

$(5x+2)°$

$37°$

$(5y+3)°$

13.    Determine the value of $x$ that would make $s \parallel r$. **Explain your reasoning**.  Why does that value make the lines parallel?

$(12x-10)°$
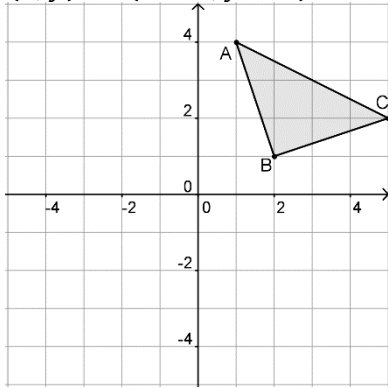
s

r

$4x°$
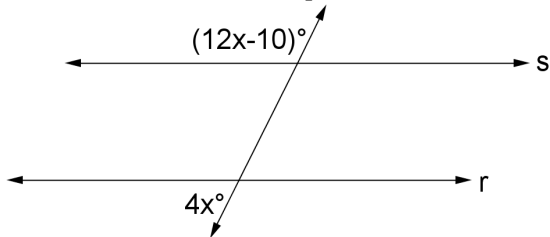
14.    If $m\angle 1 = (7x + 1)°$ and $m\angle 3 = (6x - 2)°$ determine $m\angle 4$.

1   2
6
3
5   4

15.    If $\angle 2$ is a right angle, $m\angle 5 = 20°$, and $m\angle 7 = 35°$, then determine $m\angle 4$.

1   2
7
3
6
5   4

16. Translate $\Delta ABC$
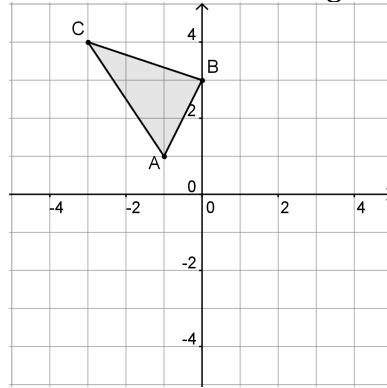$(x, y) \rightarrow (x - 5, y - 2)$



$A' = ($ _____ , _____ $)$

$B' = ($ _____ , _____ $)$

$C' = ($ _____ , _____ $)$

17. Rotate $\Delta ABC$ 90°
clockwise about the origin



$A' = ($ _____ , _____ $)$

$B' = ($ _____ , _____ $)$

$C' = ($ _____ , _____ $)$

18. Draw the reflection of $\Delta ABC$ in the given line. List the coordinates of the vertices $A', B',$ and $C'$.

a. $y$-axis



$A' = ($ _____ , _____ $)$

$B' = ($ _____ , _____ $)$

$C' = ($ _____ , _____ $)$

b. $y = -1$



$A' = ($ _____ , _____ $)$

$B' = ($ _____ , _____ $)$

$C' = ($ _____ , _____ $)$

c. $x = 2$
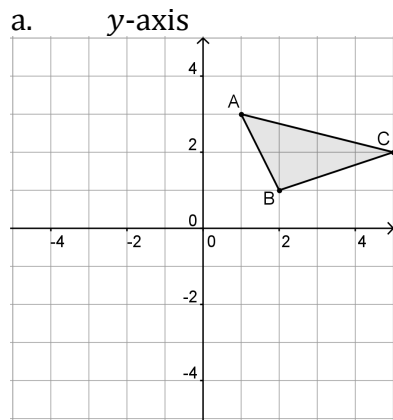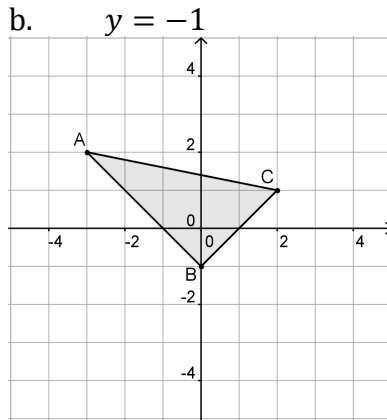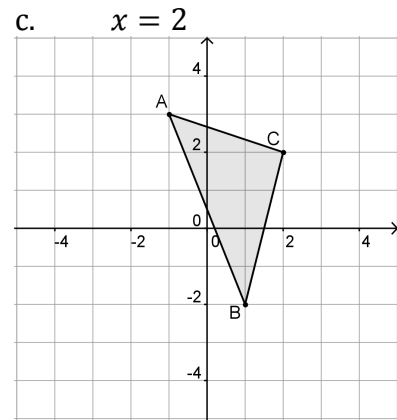


$A' = ($ _____ , _____ $)$

$B' = ($ _____ , _____ $)$

$C' = ($ _____ , _____ $)$

19. Given $\Delta DEF$ is reflected in line $a$ followed by a reflection in line $b$ where $a \parallel b$.

a. If $FF'' = 36\ ft$, then find the distance $x$ between lines $a$ and $b$.

b. Find the value of $y$.

c. Find $D'F'$.