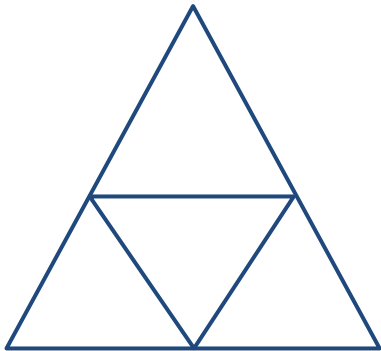
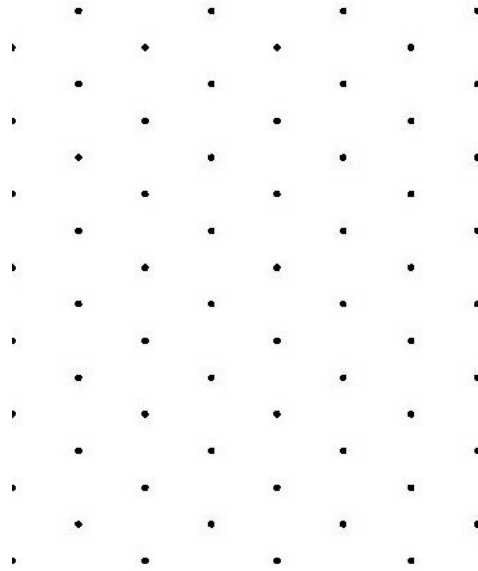


# Unit 1 - Geometry Basics Test

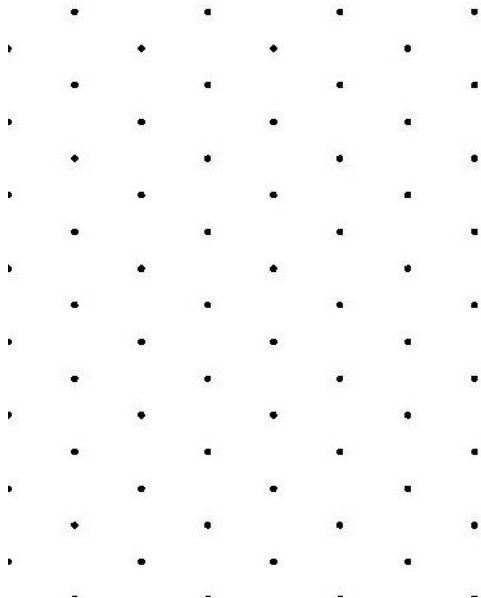
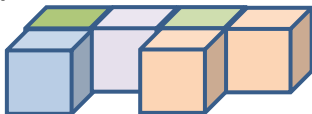
1. Name a three-dimensional figure that can be formed from each net.



2. Use isometric dot paper to sketch a rectangular prism that is 2 units high. The bases are rectangles with 3 unit's length and 2 unit's width.



3. Make an isometric drawing of each on isometric dot paper.



4. Draw four points,  $D$ ,  $F$ ,  $L$  and  $K$  in plane  $\pi$ . Points  $D$ ,  $F$  and  $K$  are collinear. Then sketch  $\overrightarrow{LF}$  and  $\overrightarrow{DK}$ .

# Unit 1 - Geometry Basics Test

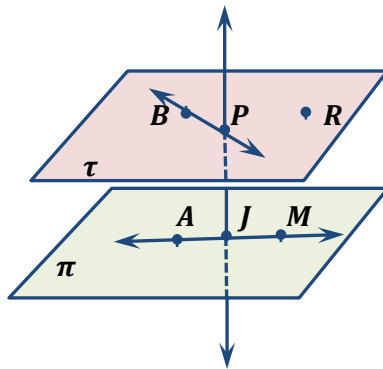
5. Draw and label figure for each relationship.

a. Line segment  $\overline{NM}$

b. Line  $\overleftrightarrow{GR}$

c. Ray  $\overrightarrow{OR}$  and ray  $\overrightarrow{OT}$

6. Refer to each figure.



Name the intersection of plane  $\pi$  and line  $\overleftrightarrow{PJ}$ .

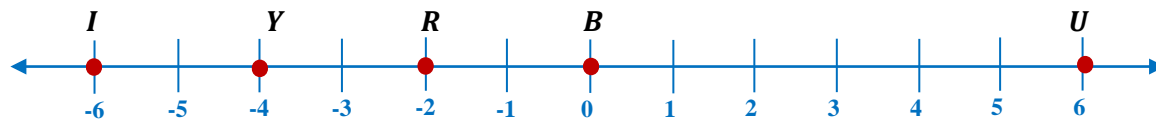
Name the intersection of plane  $\tau$  and line  $\overleftrightarrow{PJ}$ .

Name a point that is coplanar with  $B$  and  $P$ .

Name the opposite ray of ray  $\overrightarrow{JM}$ .

7. Find the length of each segment using number line. Determine whether each of the segments is congruent.

$IY = ?$   $YR = ?$   $RU = ?$   $IU = ?$



# Unit 1 - Geometry Basics Test

8. Find the value of  $x$  and the length of each segment using segment addition postulate.

Point  $A$  is between points  $S$  and  $K$ .

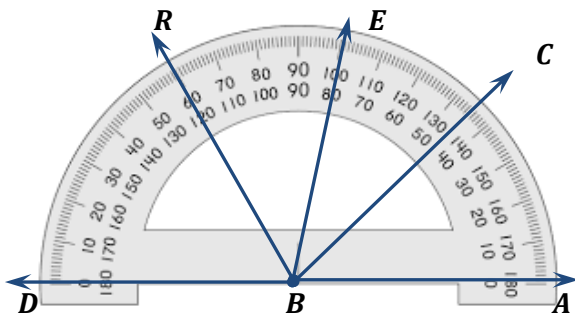
The points are collinear.

$$SA = x - 5 \quad AK = x - 3 \quad SK = 10$$

$$\overline{SA} = ? \quad \overline{AK} = ?$$

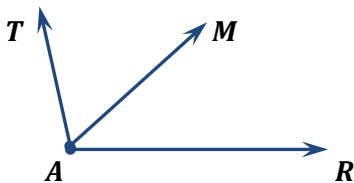
9. Find the measure of each angle.

$$m\angle CBE, m\angle EBR, m\angle DBC = ?$$



10. Find the indicated angle measures.

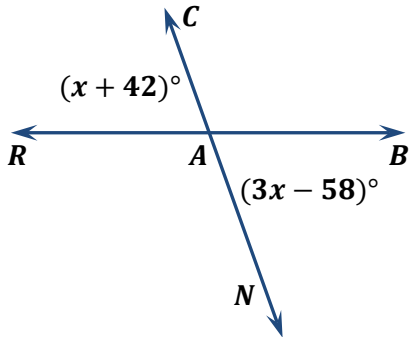
If  $\overline{AM}$  bisects  $\angle RAT$  and  $m\angle RAT = 142$ , find  $m\angle RAM$  and  $m\angle MAT$ .



# Unit 1 - Geometry Basics Test

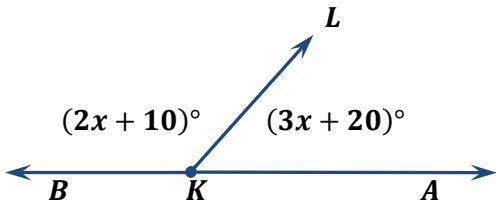
11. Find the value of  $x$  and then the indicated angle measures.

$m\angle RAC, m\angle BAN, m\angle BAC,$  and  $m\angle NAR = ?$

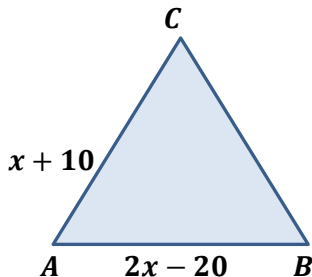


12. Find the value of  $x$  and then the indicated angle measures.

If angles  $\angle AKL$  and  $\angle BKL$  are supplementary and  $m\angle AKL = 3x + 20$ ,  $m\angle BKL = 2x + 10$ , what are  $m\angle AKL$  and  $m\angle BKL$ ?



13. Expressions are given for two side lengths of regular polygon. Find the value of  $x$ .



Name: \_\_\_\_\_ Period: \_\_\_\_\_ Date: \_\_\_\_\_

## Unit 1 - Geometry Basics Test

14. Draw a figure that fits the description.

- a. Concave dodekagon                      b. Convex decagon                      c. Convex quadrilateral

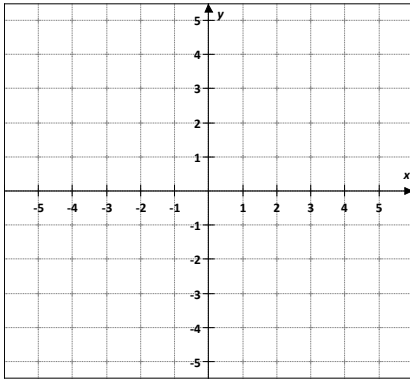
15. Determine the point  $C$  on the  $y$ -axis that is equidistant from  $A(4, 1)$  and  $B(-4, -1)$

16. Determine if  $A(1, 1)$ ,  $B(6, 1)$  and  $C(6, 4)$  are the vertices of a right triangle.

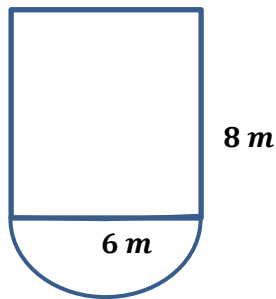
# Unit 1 - Geometry Basics Test

17. Draw the figure in the coordinate plane. Find the perimeter and area.

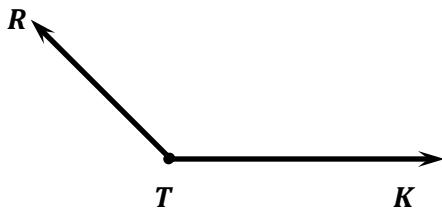
$A(-5, -4)$ ,  $T(3, -4)$ ,  $B(-5, 4)$  and  $C(3, 4)$   
 $P_{ABCT} = ?$      $A_{ABCT} = ?$



18. Find the area of the figure.

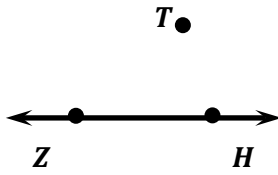


19. Construct the bisector of the given angle.



# Unit 1 - Geometry Basics Test

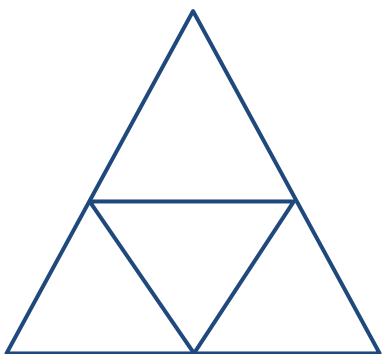
20. Construct a line parallel to a given line through a point not on the given line.



# Unit 1 - Geometry Basics Test

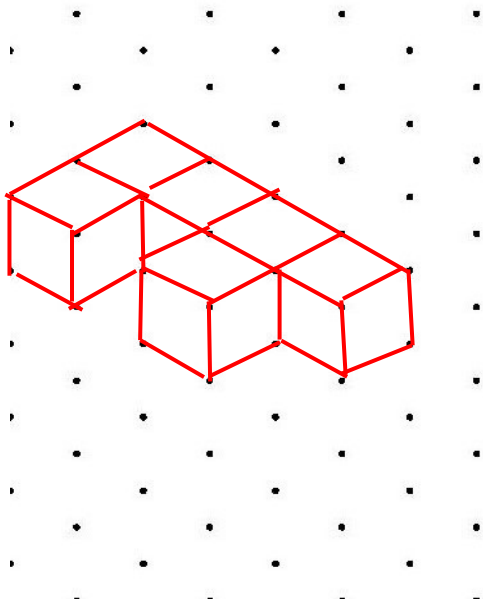
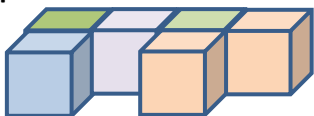
## ANSWERS

1. Name a three-dimensional figure that can be formed from each net.

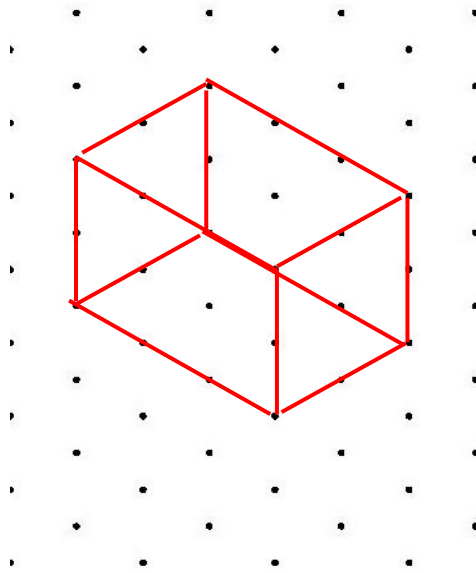


**Triangular pyramid (Tetrahedron)**

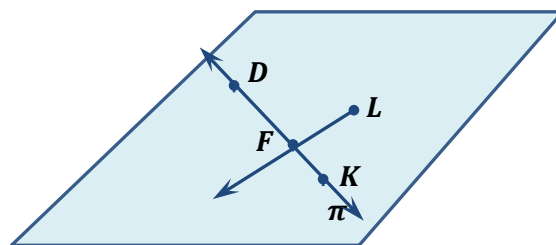
3. Make an isometric drawing of each on isometric dot paper.



2. Use isometric dot paper to sketch a rectangular prism that is 2 units high. The bases are rectangles with 3 unit's length and 2 unit's width.



4. Draw four points,  $D$ ,  $F$ ,  $L$  and  $K$  in plane  $\pi$ . Points  $D$ ,  $F$  and  $K$  are collinear. Then sketch  $\overrightarrow{LF}$  and  $\overrightarrow{DK}$ .





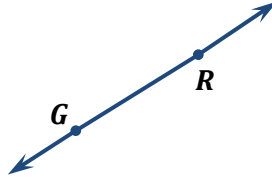
# Unit 1 - Geometry Basics Test

5. Draw and label figure for each relationship.

a. Line segment  $\overline{NM}$



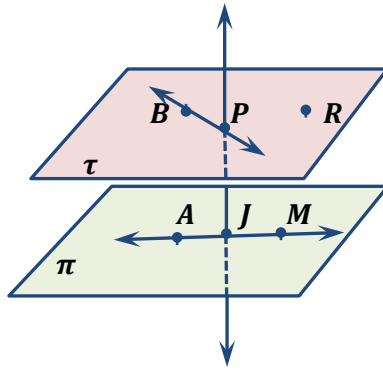
b. Line  $\overleftrightarrow{GR}$



c. Ray  $\overrightarrow{OR}$  and ray  $\overrightarrow{OT}$



6. Refer to each figure.



Name the intersection of plane  $\pi$  and line  $\overleftrightarrow{PJ}$ . **Point J**

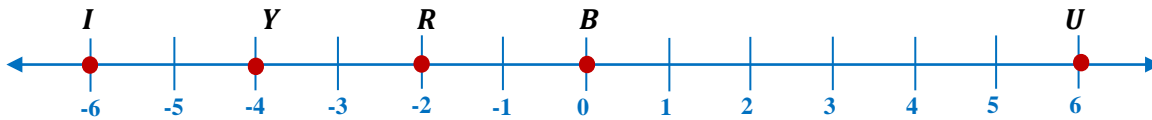
Name the intersection of plane  $\tau$  and line  $\overleftrightarrow{PJ}$ . **Point P**

Name a point that is coplanar with B and P. **Point R**

Name the opposite ray of ray  $\overrightarrow{JM}$ . **Ray  $\overrightarrow{JA}$**

7. Find the length of each segment using number line. Determine whether each of the segments is congruent.

$IY = ?$   $YR = ?$   $RU = ?$   $IU = ?$



$$IY = |-6 - (-4)| = |-6 + 4| = |-2| = 2$$

$$YR = |-4 - (-2)| = |-4 + 2| = |-2| = 2$$

$$RU = |-2 - 6| = |-8| = 8$$

$$IU = |-6 - 6| = |-12| = 12$$

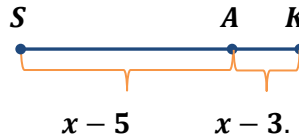
$$IY = YR$$

$$\overline{IY} \cong \overline{YR}$$

# Unit 1 - Geometry Basics Test

8. Find the value of  $x$  and the length of each segment using segment addition postulate.

Point  $A$  is between points  $S$  and  $K$ .  
 The points are collinear.  
 $SA = x - 5$      $AK = x - 3$      $SK = 10$   
 $\overline{SA} = ?$      $\overline{AK} = ?$



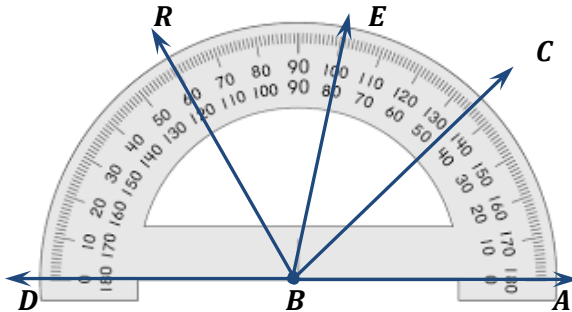
$$\begin{aligned} SA + AK &= SK \\ x - 5 + x - 3 &= 10 \\ 2x - 8 &= 10 \\ 2x - 8 + 8 &= 10 + 8 \\ 2x &= 18 \\ x &= 9 \end{aligned}$$

$$\begin{aligned} SA &= x - 5 \\ SA &= 9 - 5 = 4 \\ \overline{SA} &= 4 \end{aligned}$$

$$\begin{aligned} AK &= x - 3 \\ AK &= 9 - 3 = 6 \\ \overline{AK} &= 6 \end{aligned}$$

9. Find the measure of each angle.

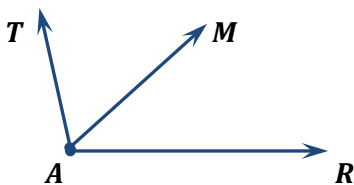
$m\angle CBE, m\angle EBR, m\angle DBC = ?$



$$\begin{aligned} m\angle CBE &= |135 - 100| = 35 \\ \text{Acute angle} \\ m\angle EBR &= |100 - 60| = 40 \\ \text{Acute angle} \\ m\angle DBC &= 135 \\ \text{Obtuse angle} \end{aligned}$$

10. Find the indicated angle measures.

If  $\overrightarrow{AM}$  bisects  $\angle RAT$  and  $m\angle RAT = 142$ ,  
 find  $m\angle RAM$  and  $m\angle MAT$ .



$$\begin{aligned} m\angle RAT &= 142 \\ m\angle RAM &= ? \quad m\angle MAT = ? \end{aligned}$$

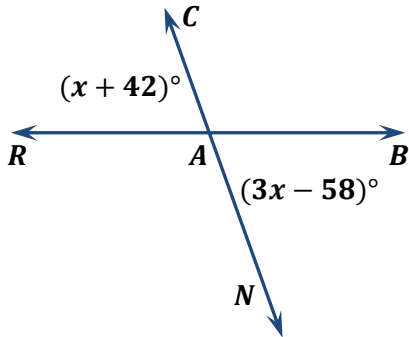
$$\begin{aligned} m\angle RAT &= m\angle RAM + m\angle MAT \\ m\angle RAM &= m\angle MAT \\ m\angle RAT &= 2 * m\angle RAM \\ m\angle RAM &= \frac{m\angle RAT}{2} \\ m\angle RAM &= \frac{142}{2} \\ m\angle RAM &= 71 \end{aligned}$$

$$\begin{aligned} m\angle MAT &= m\angle RAM \\ m\angle MAT &= 71 \end{aligned}$$

# Unit 1 - Geometry Basics Test

11. Find the value of  $x$  and then the indicated angle measures.

$m\angle RAC, m\angle BAN, m\angle BAC,$  and  $m\angle NAR = ?$        $m\angle RAC = x + 42$        $m\angle BAN = 3x - 58$



$m\angle RAC = m\angle BAN$  as vertical angles

$$x + 42 = 3x - 58$$

$$x + 42 + 58 = 3x - 58 + 58$$

$$x + 100 = 3x$$

$$x + 100 - x = 3x - x$$

$$100 = 2x$$

$$x = 50$$

$$m\angle RAC = x + 42$$

$$m\angle RAC = 50 + 42$$

$$m\angle RAC = 92$$

$$m\angle BAN = 92$$

$$m\angle BAC = 180 - m\angle RAC$$

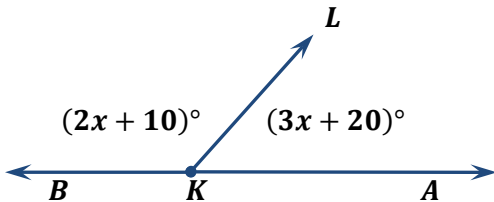
$$m\angle BAC = 180 - 92$$

$$m\angle BAC = 88$$

$$m\angle NAR = 88$$

12. Find the value of  $x$  and then the indicated angle measures.

If angles  $\angle AKL$  and  $\angle BKL$  are supplementary and  $m\angle AKL = 3x + 20$ ,  $m\angle BKL = 2x + 10$ , what are  $m\angle AKL$  and  $m\angle BKL$ ?



$$m\angle AKL = 3x + 20,$$

$$m\angle BKL = 2x + 10$$

$$m\angle AKL = ? \quad m\angle BKL = ?$$

$$180 = m\angle AKL + m\angle BKL$$

$$180 = 3x + 20 + 2x + 10$$

$$180 = 5x + 30$$

$$180 - 30 = 5x + 30 - 30$$

$$150 = 5x$$

$$x = 30$$

$$m\angle AKL = 3x + 20$$

$$m\angle AKL = 3 * 30 + 20$$

$$m\angle AKL = 90 + 20$$

$$m\angle AKL = 110$$

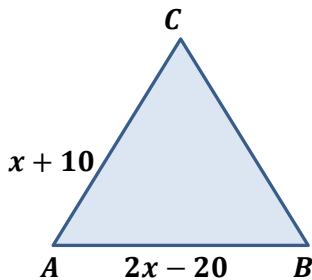
$$m\angle BKL = 2x + 10$$

$$m\angle BKL = 2 * 30 + 10$$

$$m\angle BKL = 60 + 10$$

$$m\angle BKL = 70$$

13. Expressions are given for two side lengths of regular polygon. Find the value of  $x$ .



$$\overline{AB} = 2x - 20$$

$$\overline{AC} = x + 10$$

$$\overline{AB} = \overline{AC}$$

$$2x - 20 = x + 10$$

$$2x - 20 - x = x + 10 - x$$

$$x - 20 = 10$$

$$x - 20 + 20 = 10 + 20$$

$$x = 30$$

$$\overline{AB} = 2x - 20$$

$$\overline{AB} = 2 * 30 - 20$$

$$\overline{AB} = 60 - 20$$

$$\overline{AB} = 40$$

$$\overline{AC} = x + 10$$

$$\overline{AC} = 30 + 10$$

$$\overline{AC} = 40$$

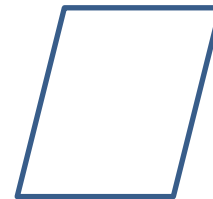
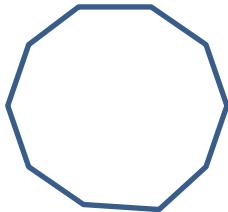
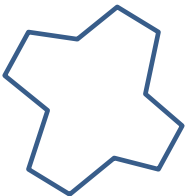
**Unit 1 - Geometry Basics** Test

14. Draw a figure that fits the description.

a. Concave dodekagon

b. Convex decagon

c. Convex quadrilateral

15. Determine the point  $C$  on the  $y$ -axis that is equidistant from  $A(4, 1)$  and  $B(-4, -1)$ 

$$\begin{aligned}
 & C(0, y) \\
 & A(4, 1), C(0, y) \text{ and } B(-4, -1) \\
 & d(A, C) = d(C, B) \\
 & \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \\
 & \sqrt{(0 - 4)^2 + (y - 1)^2} = \sqrt{(0 - (-4))^2 + (y - (-1))^2} \\
 & (0 - 4)^2 + (y - 1)^2 = (0 + 4)^2 + (y + 1)^2 \\
 & (4)^2 + (y - 1)^2 = (4)^2 + (y + 1)^2 \\
 & 16 + y^2 - 2y + 1 = 16 + y^2 + 2y + 1 \\
 & 16 + y^2 - 2y + 1 - y^2 = 16 + y^2 + 2y + 1 - y^2 \\
 & -2y + 17 = 2y + 17 \\
 & -2y + 17 - 2y = 2y + 17 - 2y \\
 & -4y + 17 = 17 \\
 & -4y + 17 - 17 = 17 - 17 \\
 & -4y = 0 \\
 & y = 0 \quad \mathbf{C(0, 0)}
 \end{aligned}$$

16. Determine if  $A(1, 1)$ ,  $B(6, 1)$  and  $C(6, 4)$  are the vertices of a right triangle.

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

$$d(A, B) = \sqrt{(6 - 1)^2 + (1 - 1)^2}$$

$$d(A, B) = \sqrt{(5)^2 + (0)^2}$$

$$d(A, B) = \sqrt{25 + 0}$$

$$d(A, B) = 5$$

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

$$d(B, C) = \sqrt{(6 - 6)^2 + (4 - 1)^2}$$

$$d(B, C) = \sqrt{(0)^2 + (3)^2}$$

$$d(B, C) = \sqrt{9}$$

$$d(B, C) = 3$$

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

$$d(A, C) = \sqrt{(6 - 1)^2 + (4 - 1)^2}$$

$$d(A, C) = \sqrt{(5)^2 + (3)^2}$$

$$d(A, C) = \sqrt{25 + 9}$$

$$d(A, C) = \sqrt{34}$$

$$(\overline{AC})^2 = (\overline{AB})^2 + (\overline{BC})^2$$

$$(\sqrt{34})^2 = (5)^2 + (3)^2$$

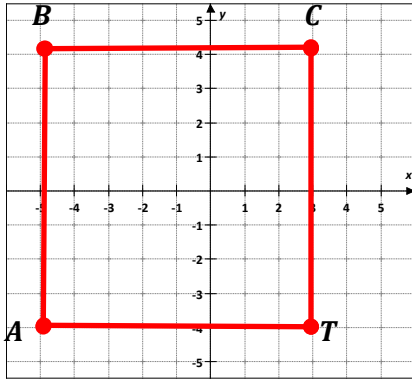
$$34 = 25 + 9$$

$$\mathbf{34 = 34}$$

# Unit 1 - Geometry Basics Test

17. Draw the figure in the coordinate plane. Find the perimeter and area.

$A(-5, -4), T(3, -4), B(-5, 4)$  and  $C(3, 4)$   
 $P_{ABCT} = ?$   $A_{ABCT} = ?$



$P_{ABCT} = AT + AB + BC + CT$   
 $AT = AB = BC = CT$   
 $P_{ABCT} = 4 * 8 \text{ units}$   
 $P_{ABCT} = 32 \text{ units}$

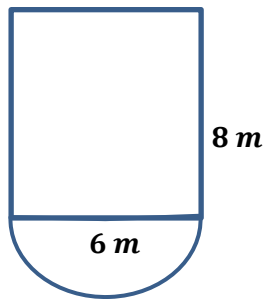
$A(-5, -4), T(3, -4), B(-5, 4)$  and  $C(3, 4)$   
 $P_{ABCT} = ?$   $A_{ABCT} = ?$

$A(-5, -4), T(3, -4)$   $A(-5, -4), B(-5, 4)$   
 $AT = |3 - (-5)|$   $AB = |4 - (-4)|$   
 $AT = |8|$   $AB = |8|$   
 $AT = 8 \text{ units}$   $AB = 8 \text{ units}$

$B(-5, 4), C(3, 4)$   $C(3, 4), T(3, -4)$   
 $BC = |3 - (-5)|$   $CT = |-4 - 4|$   
 $BC = |8|$   $CT = |-8|$   
 $BC = 8 \text{ units}$   $CT = 8 \text{ units}$

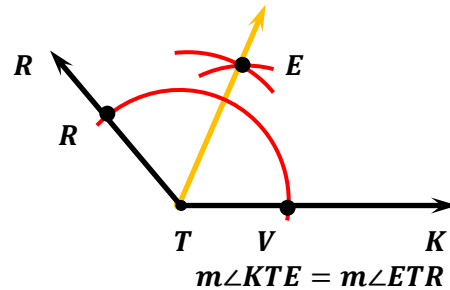
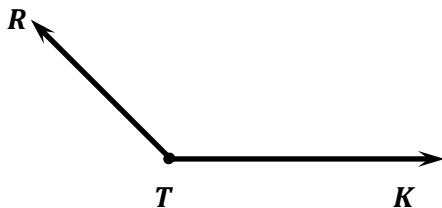
**SQUARE**  
 $A_{ABCT} = AT * AB$   
 $A_{ABCT} = 8 \text{ units} * 8 \text{ units}$   
 $A_{ABCT} = 64 \text{ units}^2$

18. Find the area of the figure.



$A = ?$   
 $A = A_{\text{rectangle}} + A_{\text{semicircle}}$   
 $A = 8 \text{ m} * 6 \text{ m} + \frac{1}{2} \pi * 3^2 \text{ m}^2$   
 $A = 48 \text{ m}^2 + \frac{1}{2} 9 \text{ m}^2 \pi$   
 $A = 48 \text{ m}^2 + 4.5 \text{ m}^2 * \pi$   
 $A = 48 \text{ m}^2 + 14.1 \text{ m}^2$   
 $A = 62.1 \text{ m}^2$

19. Construct the bisector of the given angle.



# Unit 1 - Geometry Basics Test

20. Construct a line parallel to a given line through a point not on the given line.

