1.1 Assignment

1) Complete the chart:

<table>
<thead>
<tr>
<th>Conditional</th>
<th>Converse</th>
<th>Inverse</th>
<th>Contrapositive</th>
<th>Biconditional</th>
</tr>
</thead>
<tbody>
<tr>
<td>s→t</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>x→¬z</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2) Use the following propositions to write the indicated logical statements discussed in the notes.

A) Given: p: I need my raincoat. q: It is raining outside.

Converse: ____________________________________________

Inverse: ______________________________________________

Contrapositive: _______________________________________

Biconditional: ________________________________________

B) Given: a: I have the flu. b: I am sick.

Converse: ____________________________________________

Inverse: ______________________________________________

Contrapositive: _______________________________________

Biconditional: ________________________________________

C) Which of the examples above has a valid biconditional? Why?

3) Use the propositions below and the statements to write the symbolic representation of the statement.

A) r: I ate macaroni and cheese. s: I am full.

“If I am not full, I did not eat macaroni and cheese.”

Symbolic Form: _____________________

B) v: I am hot. w: I went swimming.

“If I am hot, then I will not go swimming.”

Symbolic Form: _____________________

C) a: She will get the part in the movie. b: She had a successful audition.

“She will get the part in the movie if and only if she had a successful audition.”

Symbolic Form: _____________________

4. Write the hypothesis and conclusion of the given statement.

“If you are a former president, then you are a man.”

Hypothesis: _______________________________ Conclusion: ___________________________

5. The following statement is the CONTRAPOSITIVE of the conditional! Write the original hypothesis and conclusion of the conditional.

“If I do not have my car keys, then I am not driving my truck.”

Conditional Statement: ________________________________

Hypothesis: _______________________________ Conclusion: ___________________________
1.2 Assignment:

1) Given: line \( h: y = -\frac{9}{5}x + 2 \). What is the slope of a line that is parallel and the slope of a line that is perpendicular to line \( h \)?

Parallel: \___________\ 
Perpendicular: \___________\ 

2) For problems (a)-(d), use the given line and point to:
   a) Draw the line parallel to the given line through the point.
   b) Explain why the line is parallel to the original line.
   c) Using a different color, draw the line perpendicular to the given line through the point. Label the line \( t \).
   d) Explain why the line is perpendicular to the original line.

3) Line \( n \) contains the points (-1,4) and (2,-2). Graph a line that is parallel and in a different color graph a line that is perpendicular to Line \( n \) but goes through the point (2,2).

4) Line \( k \) contains the points (4,1) and (2,-2). Graph a line that is parallel and, in a different color, graph a line that is perpendicular to Line \( n \) but goes through the point (-2,2).
5) Given: \( \overline{AB} \perp \overline{CD} \) at P, \( m\angle DPA = 7x - 8 \)
   Sketch: ________ Solve for x. ______
   a) Sketch the given situation
   b) Write an equation and solve for x.

6) Given: \( \overline{DJ} \perp \overline{TK} \) at R, \( m\angle JRK = 2x + 4 \)
   Sketch: ________ Solve for x. ______
   a) Sketch the given situation
   b) Write an equation and solve for x.

7) Given the following lines \( y = 2x + 4 \) and \(-3y + 6x = 9\), determine if the lines are parallel, perpendicular or neither.

8) Sarah and Edward were given the following problem:
   Line A contains the points \((5, -8)\) and \((-2, -10)\) and
   Line B contains the points \((-6, -13)\) and \((-2, 1)\). Determine if Line A and Line B are parallel, perpendicular or neither.

   Sarah said Line A was perpendicular to Line B. Edward said Line A and Line B were neither parallel nor perpendicular.

   Who was correct and why? Show supporting work for your answer.

9) Given: 
   \begin{align*}
   \text{Slope of } \overline{CD} & \text{ is } \frac{-5}{6} \\
   \text{Slope of } \overline{VT} & \text{ is } 7 \\
   \text{Slope of } \overline{ES} & \text{ is } 0 \\
   \text{Slope of } \overline{UL} & \text{ is } -7 \\
   \text{Slope of } \overline{YP} & \text{ is } \frac{6}{5} \\
   \text{Slope of } \overline{MG} & \text{ is } \frac{-5}{6}
   \end{align*}

   Circle all valid statements:
   a) \( \overline{VT} \parallel \overline{UL} \)  
   b) \( \overline{CD} \parallel \overline{YP} \)  
   c) \( \overline{CD} \parallel \overline{MG} \)  
   d) \( \overline{VT} \perp \overline{UL} \)  
   e) \( \overline{CD} \perp \overline{YP} \)  
   f) \( \overline{YP} \perp \overline{MG} \)  
   g) \( \overline{ES} \) is a horizontal line.  
   h) \( \overline{ES} \) is a vertical line.

   Answer: ___________________________
1.3 Assignment

Use the diagram below for questions 1 and 2.

1. What is the relationship between lines $g$ and $n$?

2. How does $w$ relate to $g$ and $n$?

3. What conclusion can you make about lines $x$ and $z$ based on the diagram at the right? Explain.

4. Find $m\angle 1$ and $m\angle 2$. Use the given angle to help justify each answer with the correct angle relationship name.

A.

B.

$m\angle 1 = \underline{\hspace{2cm}}$ because $
 m\angle 2 = \underline{\hspace{2cm}}$ because

C.

D.

$m\angle 1 = \underline{\hspace{2cm}}$ because

$m\angle 2 = \underline{\hspace{2cm}}$ because
5. Find the remaining angle measures.

A.

\[ m \angle 1 = \text{______} \text{because} \] 
\[ m \angle 2 = \text{______} \text{because} \]

B.

\[ m \angle 1 = \text{______} \text{because} \] 
\[ m \angle 2 = \text{______} \text{because} \]

6. Given the following angle measures:

\[ r = 64^\circ, t = 108^\circ, v = 61^\circ, x = 169^\circ, z = 75^\circ, y = 79^\circ \]

Find the following angles:

\[ a = \text{______} \quad h = \text{______} \quad q = \text{______} \]
\[ b = \text{______} \quad i = \text{______} \quad s = \text{______} \]
\[ c = \text{______} \quad j = \text{______} \quad w = \text{______} \]
\[ d = \text{______} \quad k = \text{______} \]
\[ e = \text{______} \quad m = \text{______} \]
\[ f = \text{______} \quad n = \text{______} \]
\[ g = \text{______} \quad p = \text{______} \]

Answer the following questions about how you would justify your answers:

1. If \( r = 64^\circ \), how did you find \( d \)?

2. If \( z = 75^\circ \), how did you find \( m \)?

3. If \( t = 108^\circ \), how did you find \( j \)?

4. In a few sentences, explain how you found \( q \):
1.4 Assignment

1) What is the value of x?

\[ \text{Justification: If } \ldots \text{, then } \ldots \]

\[ x = \ldots \]

2) Given \( DE \parallel BC \), find the \( m\angle ABC \).

\[ \text{Justification: If } \ldots \text{, then } \ldots \]

\[ m\angle ABC = \ldots \]

3) If \( WS \parallel RK \), then \( x = ? \)

\[ \text{Justification: If } \ldots \text{, then } \ldots \]

\[ x = \ldots \]

4) For what value of \( x \) is \( a \parallel b \)?

\[ \text{Justification: If } \ldots \text{, then } \ldots \]

\[ x = \ldots \]
Geometry Quarter 1 Make Up Work

5) Given: \( y \parallel t \); \( a \parallel m \)

a) A) Given: \( m\angle 2 = (4x + 10)^\circ \) and \( m\angle 11 = (6x - 20)^\circ \)

Write an equation to solve for \( x \). _____________________

Justification: If ____________________________________________
then, ____________________________________________

B) Given: \( m\angle 7 = (4x + 10)^\circ \) and \( m\angle 11 = (6x - 20)^\circ \)

Write an equation to solve for \( x \). _____________________

Justification: If ____________________________________________
then, ____________________________________________

6) The diagram below shows the intersection of Main Street, Elm Street and Parker Avenue. Assuming Main Street is parallel to Elm Street, what is the value of \( x \)?

\[ a) \ 45^\circ \quad b) \ 90^\circ \quad c) \ 135^\circ \quad d) \ 180^\circ \]

Justification: If ________________
then, ________________

7) Becky wants to install a patio in her backyard. She drew a diagram of her plans. What should be the measure of \( \angle PQR \) if the house and the edge of the patio are parallel?

\[ a) \ 180^\circ \quad b) \ 140^\circ \quad c) \ 40^\circ \quad d) \ 20^\circ \]

Justification: If ________________
then, ________________

8) Grady Avenue and Clark Road are parallel. The measure of the angle at the church, at the intersection of Emmett and Grady, is \( 105^\circ \). Find the measure of the angles at the school, at the intersection of Emmett and Clark.

_________________ degrees

Justification: If ___

_________________ degrees

Justification: If ___

9) What value of \( x \) and \( y \) would make \( l \) parallel to \( m \)?

\[ x = \ldots \quad y = \ldots \]
1.5 Assignment

Which lines are parallel? _________

Given: \( p \parallel m, \ m\angle 5 = 30^\circ, \text{ and } m\angle 12 = 40^\circ \)

1. \( w \parallel t \)

2. \( p \parallel k \)

3. \( r \parallel s \)

4. \( m \parallel n \)

5. \( j \parallel l \)

6. \( i \parallel h \)

7. \( g \parallel f \)

8. \( e \parallel d \)

9. \( c \parallel b \)

10. \( a \parallel \) Given: \( \angle 2 = 60^\circ, \text{ then } \angle 10 = \) _____

b) \( \angle 11 = (2x + 50)^\circ \text{ and } \angle 13 = (8x - 20)^\circ \)

Solve for \( x \).

Justification: If \( \text{______________________________}, \)

then \( \text{______________________________} \)
Given: If you live in Norfolk, then you live in Virginia.

a) Write the converse:

b) Write the inverse:

c) Is the inverse true or false? Explain.

______________________________
______________________________

d) Write the contrapositive:

Given:

d: it is not raining
e: it is sunny
f: I need sunglasses

Translate the following statements.

a) $d \rightarrow e$

______________________________

b) $\sim d \rightarrow f$

______________________________

c) If it is sunny, then I need sunglasses. ________
What is the slope of the line parallel to the line with points (1, 5) and (3, -2)?

What is the slope of the line parallel to the given line?

What is the slope of the line perpendicular to the line with points (1, 5) and (3, -2)?

What is the slope of the line perpendicular to the given line?

Given the line \( y = \frac{5}{7} x - 3 \). Which of the following the equation of a line perpendicular to the given line?

a) \( y = -\frac{5}{7} x + 4 \)  b) \( y = -\frac{7}{5} x - 2 \)  c) \( y = \frac{7}{5} x + 1 \)  d) \( y = \frac{5}{7} x - 6 \)
1) Write the converse, inverse and contrapositive of the following statement:

*If I eat my lunch, then I will not be hungry*

Converse: ____________________________________________________________

Inverse: ____________________________________________________________

Contrapositive: ____________________________________________________

2) Write the following statement as a biconditional: *If a polygon has four sides, then it is a quadrilateral*

Biconditional: ______________________________________________________

3) Given the points G(-4, -4) and U(2, 3). What is the slope of a line that would be parallel and perpendicular?

Parallel: ________

Perpendicular: ________

4) Given the following graph, graph a line that is parallel and a line that is perpendicular to the given line that goes through point C.

Parallel: ________

Perpendicular: ________

5) Given the following parallel lines being cut by a transversal. Solve for x.

a) ________

b) ________

6. Given:

<table>
<thead>
<tr>
<th>Line</th>
<th>Slope</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \overline{YH} )</td>
<td>(-\frac{2}{9})</td>
</tr>
<tr>
<td>( \overline{XX} )</td>
<td>5</td>
</tr>
<tr>
<td>( \overline{ZP} )</td>
<td>(-\frac{2}{9})</td>
</tr>
<tr>
<td>( \overline{VT} )</td>
<td>0</td>
</tr>
<tr>
<td>( \overline{GG} )</td>
<td>(-5)</td>
</tr>
<tr>
<td>( \overline{MG} )</td>
<td>(\frac{9}{2})</td>
</tr>
</tbody>
</table>

Circle all valid statements.

a) \( \overline{YH} \parallel \overline{ZP} \)  
   b) \( \overline{XX} \parallel \overline{GG} \)  
   c) \( \overline{ZP} \parallel \overline{MG} \)  
   d) \( \overline{MG} \perp \overline{YH} \)  
   e) \( \overline{XX} \perp \overline{GG} \)  
   f) \( \overline{VT} \) is a horizontal line.  
   g) \( \overline{VT} \) is a vertical line.
Geometry Quarter 1 Make Up Work

7) Given: \(p: \text{the weather is rainy} \quad q: \text{the sky is cloudy} \quad r: \text{the ground is not dry}\)

Translate each of the following statements.

a) If the weather is not rainy, then the sky is not cloudy. _____________

b) If the sky is cloudy, then the ground is not dry. _____________

c) \(r \rightarrow p \) ____________________________________________________________________________________

d) \(q \rightarrow \sim p \) ____________________________________________________________________________________

8) Given: \(\overline{HJ} \perp \overline{UG} \text{ at } T\)

and \(m \angle UTJ = (5x - 20)^\circ\).

Sketch:

Solve for \(x\). _____________

10) \(p \parallel m\), \(m \angle 5 = 34^\circ\), and \(m \angle 13 = 108^\circ\)

a) \(m \angle 2 = \) _____

b) \(m \angle 7 = \) _____

c) \(m \angle 9 = \) _____

d) \(m \angle 8 = \) _____

e) \(m \angle 11 = \) _____

11) Given: \(t \parallel m\)

Prove: \(\angle 5 \text{ and } \angle 8 \text{ are supplementary.}\)

15. Given, \(m \parallel t\), explain why the following statement is false. Use angle pair names and relationships.

\(\text{If } m \angle 1 = 40^\circ, \text{ then } m \angle 2 = 40^\circ.\)

16. Given: \(p \parallel m\), \(m \angle 5 = 34^\circ\), and \(m \angle 13 = 108^\circ\)

\(t \parallel m\)

<table>
<thead>
<tr>
<th>Statement</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>(t \parallel m)</td>
<td></td>
</tr>
<tr>
<td>(\angle 5 \text{ and } \angle 6 \text{ are supplementary.})</td>
<td></td>
</tr>
<tr>
<td>(\angle 6 \cong \angle 8)</td>
<td></td>
</tr>
<tr>
<td>(\angle 5 \text{ and } \angle 8 \text{ are supplementary.})</td>
<td></td>
</tr>
</tbody>
</table>

Choices

A) Definition of Linear Pair
B) Definition of Vertical Angles
C) Given
D) If a transversal intersects parallel lines, then corresponding angles are congruent.
E) If a transversal intersects parallel lines, then consecutive interior angles are supplementary.
F) Substitution Property
G) Transitive Property
2.1 Assignment

Problems 1 and 2 are PARALLELOGRAMS.

1. \[ \begin{align*}
A & = 15 \\
B & = 8 \\
C & = 68^\circ \\
D & = \text{?}
\end{align*} \]

\[ \begin{align*}
AD & = \text{?} \\
DC & = \text{?} \\
m\angle A & = \text{?} \\
m\angle B & = \text{?} \\
m\angle C & = \text{?}
\end{align*} \]

Perimeter: ________

2. \[ \begin{align*}
K & = 31 \\
L & = 45 \\
M & = 119^\circ \\
N & = \text{?}
\end{align*} \]

\[ \begin{align*}
MN & = \text{?} \\
KN & = \text{?} \\
m\angle K & = \text{?} \\
m\angle L & = \text{?} \\
m\angle M & = \text{?}
\end{align*} \]

Perimeter: ________

Problems 3 and 4 are RHOMBI.

3. \[ \begin{align*}
1 & = \text{?} \\
2 & = \text{?} \\
3 & = \text{?}
\end{align*} \]

\[ \begin{align*}
m\angle 1 & = \text{?} \\
m\angle 2 & = \text{?} \\
m\angle 3 & = \text{?}
\end{align*} \]

4. Given Rhombus ABCD. If the \( m\angle BCD = 96^\circ \), what is the measure of the other angles?

\[ \begin{align*}
m\angle A & = \text{?} \\
m\angle B & = \text{?} \\
m\angle D & = \text{?}
\end{align*} \]

Problems 5 – 7 are TRAPEZOIDS.

5. \[ \begin{align*}
L & = 1 \\
M & = 2 \\
O & = 3 \\
N & = \text{?}
\end{align*} \]

\[ \begin{align*}
m\angle 1 & = \text{?} \\
m\angle 2 & = \text{?} \\
m\angle 3 & = \text{?}
\end{align*} \]

6. \[ \begin{align*}
J & = 87^\circ \\
K & = \text{?} \\
M & = \text{?} \\
L & = 51^\circ
\end{align*} \]

\[ \begin{align*}
m\angle K & = \text{?} \\
m\angle M & = \text{?}
\end{align*} \]

7. \[ \begin{align*}
A & = 62^\circ \\
B & = \text{?} \\
C & = \text{?} \\
D & = \text{?}
\end{align*} \]

\[ \begin{align*}
m\angle C & = \text{?} \\
m\angle D & = \text{?}
\end{align*} \]

8. Given: The perimeter of Rhombus BLSK is 36 inches. What is the length of each side?
9. Given: Rectangle ABCD. If $\overline{AB}$ has a slope of $\frac{2}{3}$, what is the slope of $\overline{BC}$?

a) $\frac{2}{3}$ because $\overline{AB}$ is parallel to $\overline{BC}$

b) $-\frac{2}{3}$ because $\overline{AB}$ is parallel to $\overline{BC}$

c) $\frac{3}{2}$ because $\overline{AB}$ is perpendicular to $\overline{BC}$

d) $-\frac{3}{2}$ because $\overline{AB}$ is perpendicular to $\overline{BC}$

10. What is the perimeter of Quadrilateral ZGNP if $NP = 11.2 \text{ cm}$? If the $m\angle GZP = 8x + 36$, what is the value of $x$?

Perimeter: _____________

x = _____________

11. The slats on Venetian blinds are designed to remain parallel in order to direct the path of light coming in a window. In parallelogram FGHI, $FJ = \frac{3}{4}$ inch, $FG = 1$ inch and $m\angle HGJ = 62^\circ$.

Find each of the following:

a) $JH = \_\_\_\_

b) $GH = \_\_\_\_

c) $m\angle JFG = \_\_\_\_

d) $m\angle FJH = \_\_\_\_

12. Wesley is a member of the kennel club in his area. His club uses accordion fencing like the section shown below to block out areas at dog shows.

a) Identify two pairs of congruent segments:

b) Identify two pairs of supplementary angles:
2.2 Assignment

1) Solve for $x$.
\[
\begin{align*}
(5x + 13)^\circ & \quad (9x - 31)^\circ \\
& \\
\end{align*}
\]
$x = _____$

2) Solve for $x$.
\[
\begin{align*}
(15x - 8)^\circ & \quad (12x + 25)^\circ \\
& \\
\end{align*}
\]
$x = _____$

3) Solve for $x$.
\[
\begin{align*}
(2x + 27)^\circ & \quad (3x - 12)^\circ \\
& \\
\end{align*}
\]
$x = _____$

4) Solve for $x$.
\[
\begin{align*}
(10x - 19)^\circ & \quad (4x - 11)^\circ \\
& \\
\end{align*}
\]
$x = _____$

5) Solve for $x$ and the $m\angle BAD$.
\[
\begin{align*}
(9x-4)^\circ & \quad (3x+14)^\circ \\
& \\
\end{align*}
\]
$x = _____, m\angle BAD = _____$

6) Solve for $x$ and the $m\angle NMP$.
\[
\begin{align*}
(20x+9)^\circ & \quad (27x-12)^\circ \\
& \\
\end{align*}
\]
$x = _____, m\angle NMP = _____$

7) Find the area and perimeter of Rhombus JKLM.
\[
\begin{align*}
9x-43 & \quad 3x+20 \\
& \\
\end{align*}
\]
$x = _____, \text{perimeter} = _____, \text{area} = _____$

8) Find the area and perimeter of Square WXYZ.
\[
\begin{align*}
3x+47 & \quad 10x-37 \\
& \\
\end{align*}
\]
$x = _____, \text{perimeter} = _____, \text{area} = _____
9) Given trapezoid MNOP with base $MN$. If $m\angle M = (7x + 36)^\circ$ and if $m\angle P = (3x + 4)^\circ$, what is the $m\angle M$?

Sketch:

$m\angle M = ______$

10) Given trapezoid RSTU with base $RS$. If $m\angle S = (6x + 21)^\circ$ and if $m\angle T = (4x + 19)^\circ$, what is the $m\angle S$?

Sketch:

$m\angle S = ______$

11) Given parallelogram ABCD. Find $x$, $y$ and the perimeter.

$x = ______$

$y = ______$

Perimeter = ______

12) Given parallelogram WXYZ. Find $x$, $y$ and the perimeter.

$x = ______$

$y = ______$

Perimeter = ______
2.3 Assignment

Given Square ABDC

1A) Using the slope formula, find the slope of $BD$.

Work:

Slope of $BD = ________$

1B) Using the slope formula, find the slope of $AC$.

Work:

Slope of $AC = ________$

2A) Find the slope of $AB$ graphically. ______________

2B) Find the slope of $CD$ graphically. ______________

3A) Find the length of $AC$ using the distance formula.

Work:

$AC = ________$

3B) Find the length of $DB$ using the distance formula.

Work:

$DB = ________$

4A) Find the length of $DC$ using the Pythagorean Theorem.

Work:

$DC = ________$

4B) Find the length of $AB$ using the Pythagorean Theorem.

Work:

$AB = ________$
5A) Using the slope formula, find the slope of $BA$.
Work:

$$\text{Slope of } BA = \_\_\_\_\_\_$$

6A) Find the slope of $BC$ graphically. \_\_\_\_\_\_\_\_\_

7A) Find the length of $AD$ using the distance formula.
Work:

$$AD = \_\_\_\_\_\_$$

8A) Find the length of $CD$ using the Pythagorean Theorem.
Work:

$$CD = \_\_\_\_\_\_$$

5B) Using the slope formula, find the slope of $DC$.
Work:

$$\text{Slope of } DC = \_\_\_\_\_\_\_\_$$

6B) Find the slope of $AD$ graphically. \_\_\_\_\_\_\_\_\_

7B) Find the length of $BC$ using the distance formula.
Work:

$$BC = \_\_\_\_\_\_$$

8B) Find the length of $BA$ using the Pythagorean Theorem.
Work:

$$BA = \_\_\_\_\_\_$$
2.4 Assignment

Find the sum of the angle measures of each polygon:

a)  

b) 25-gon  
c) 30-gon

Find the measure of one interior angle of each regular polygon. Round to the nearest tenth if necessary.

a)  
b) Regular 11-gon  
c) Regular 24-gon

Solve for x.

a)  
b)  

c)  
d)  

e) Three interior angles of an octagon measure 83°, 47°, and 100°. The other five angles are congruent. What is the measure of each of the five congruent angles?

f) Two interior angles of a hexagon measure 106° and 98°. The other four angles are congruent. What is the measure of each of the four congruent angles?
Find the measure of an exterior angle of each regular polygon. Round to the nearest tenth if necessary.

a) Decagon
b) Hexagon

The measure of an exterior angle of a regular polygon is given. Find the number of sides.

a) 6°
b) 45°

The measure of the interior angle of a regular polygon is given. How many sides does the polygon have?

a) 140°
b) 175.2°

Given the polygons below, find the value of x.

a)

b)

Pre-IB & Honors Geometry:

1) In baseball, home plate is a pentagon. The dimensions of home plate are shown. What is the sum of the measures of the interior angles of home plate?
Geometry Quarter 1 Make Up Work

2) During the halftime performance for a football game, the color guard is planning a new formation in which seven members stand around a central point and stretch their flag to the person immediately to their left as shown.

   a) What is the measure of each exterior angle of the formation?

   b) If the perimeter of the formation is 38.5 feet, how long is each flag?

3) The aperture on the camera lens shown is a regular 14-sided polygon.

   a) What is the measure of each interior angle of the polygon?

   b) What is the measure of each exterior angle of the polygon?
2.5 Assignment

1. Regular Hexagon ABEFGH and regular Quadrilateral BCDE meet at vertices B and E and share a common edge $\overline{BE}$. What is the $m\angle DEF$?

$$m\angle DEF = \boxed{120^\circ}$$

2) A regular pentagon and a regular hexagon share a side as shown in the figure.
What is the measure of $\angle ABG$?

$$m\angle ABG = \boxed{120^\circ}$$

3) Solve for $x$.

$$x = \boxed{8}$$

4) What is the value of $x$?

$$x = \boxed{8}$$

5) What is the measure of one exterior angle of a regular pentagon? __________

6) If the measure of each exterior angle of a polygon is $15^\circ$, then how many sides does it have? __________

7) If the measure of each interior angle of a polygon is $162^\circ$ degrees, then how many sides does it have? __________

8) What is the $m\angle BRM$? __________ degrees

9) Solve for $x$.

$$x = \boxed{10}$$

10) Two interior angles of a hexagon measure $106^\circ$ and $98^\circ$. The other four angles are congruent.
What is the measure of each of the four congruent angles? __________ degrees

$$x = \boxed{82}$$
11) Find the $m \angle SYA$. ________ degrees

12) Find the $m \angle F$. ________ degrees

13) What is the perimeter of the rectangle? _____

14) Given the trapezoid to the below,

\[ m \angle 1 = _____^\circ \]

\[ m \angle 2 = _____^\circ \]

15) Translate the following given:

$p$: 15 is a prime number

$q$: Vertical angles are congruent

$r$: Christmas is in December

a) $q \lor r$:

b) $\sim p \land \sim q$:

c) $\sim r \land p$:

16) Show that Quadrilateral TURN is a parallelogram by showing that one pair of opposite sides is parallel and congruent:

a) Slope of $\overline{NT}$ = _____

b) Slope of $\overline{RU}$ = _____

c) $NT \approx _____$ Use the distance formula.

Round to the nearest tenth.

d) $RU \approx _____$ Use the Pythagorean Theorem.

Round to the nearest tenth.
**Unit 2 Test Review**

1) Find the value of $x$.

\[
\begin{align*}
\angle A &= 135^\circ \\
\angle B &= (5x - 4)^\circ \\
\angle C &= (3x + 31)^\circ \\
\angle D &= (5x - 8)^\circ \\
\angle E &= 120^\circ
\end{align*}
\]

$x = \underline{\hspace{2cm}}$

2) Find the value of $x$.

\[
\begin{align*}
\angle 1 &= (3x + 6)^\circ \\
\angle 2 &= (2x + 11)^\circ \\
\angle 3 &= (5x - 5)^\circ \\
\angle 4 &= (4x + 7)^\circ \\
\angle 5 &= 62^\circ
\end{align*}
\]

$x = \underline{\hspace{2cm}}$

3) If an interior angle of a regular polygon measures $160^\circ$, how many sides does it have?

4) What is the measure of an exterior angle of a regular hexagon?

5) What is the $m\angle BCD$?

\[
\begin{align*}
\angle A &= (5x + 38)^\circ \\
\angle B &= (8x - 19)^\circ \\
\angle C &= (6x - 9)^\circ
\end{align*}
\]

$m\angle BCD = \underline{\hspace{2cm}}$

6) What is the $m\angle RSP$?

\[
\begin{align*}
\angle P &= (4y + 7)^\circ \\
\angle Q &= (10y - 37)^\circ \\
\angle R &= (5y + 7)^\circ
\end{align*}
\]

$m\angle RSP = \underline{\hspace{2cm}}$

7) Given: Trapezoid RSTU with base $RS$. If the $m\angle S = 12x + 3$ and $m\angle T = 7x - 13$, what is the $m\angle T$?

8) Find the values of $x$, $y$ and the perimeter of the parallelogram below.

\[
\begin{align*}
\text{Perimeter} &= \underline{\hspace{2cm}}
\end{align*}
\]
9) Trapezoid QRST below. Find the \( m \angle S \).

\[ m \angle S = \______ \]

10) Given the regular polygon to the left, what is the \( m \angle DEF \)?

\[ m \angle DEF = \______ \]

11) Three interior angles of an octagon measure 88\(^\circ\), 97\(^\circ\) and 145\(^\circ\). The other five angles are congruent. What is the measure of each of the five congruent angles? \( \______ \)

12) Part of a regular polygon is shown, how many sides does it have? \( \______ \)

13) Given Quadrilateral RSTU. Plot and label point T so that Quadrilateral RSTU is a parallelogram.

14) Given Quadrilateral MATH, prove that it is a parallelogram.

   a) Slope of \( MA = \______ \) (Use Slope Formula)
   b) Slope of \( HT = \______ \)
   c) \( MA = \______ \) (Use Distance Formula)
   d) \( HT = \______ \) (Use Pythagorean Theorem)
   e) Quadrilateral MATH is a \( \______________________ \) because one pair of opposite sides are \( \______ \) and \( \______ \).