1. Classify the following triangles by sides as a scalene triangle, an isosceles triangle, or an equilateral triangle.

<table>
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<tr>
<th>Scalene Triangles</th>
<th>Equilateral Triangles</th>
<th>Isosceles Triangles</th>
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2. Classify the following triangles by angles as a right triangle, an isosceles
triangle, or an equilateral triangle. Use a protractor to help you classify the
triangles.

<table>
<thead>
<tr>
<th>Right Triangles</th>
<th>Equilateral Triangles</th>
<th>Isosceles Triangles</th>
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Name: __________________________ Date: ______________
Lesson 13.2  Measures of Angles of a Triangle

Find the unknown angle measures. The figures are not drawn to scale.

1. \( \triangle ABC \)
   \[ \begin{align*}
   \angle A &= \phantom{0}a \\
   \angle B &= 38^\circ \\
   \angle C &= 46^\circ \\
   
   \text{Find } m\angle a = 
   \end{align*} \]

2. \( \triangle CDE \)
   \[ \begin{align*}
   \angle C &= 39^\circ \\
   \angle D &= 115^\circ \\
   \angle E &= \phantom{0}e \\
   
   \text{Find } m\angle e = 
   \end{align*} \]

3. \( \triangle FGH \)
   \[ \begin{align*}
   \angle F &= 28^\circ \\
   \angle G &= 19^\circ \\
   \angle H &= \phantom{0}g \\
   
   \text{Find } m\angle g = 
   \end{align*} \]

4. \( \triangle DEF \)
   \[ \begin{align*}
   \angle D &= 45^\circ \\
   \angle E &= 76^\circ \\
   \angle F &= \phantom{0}f \\
   
   \text{Find } m\angle f = 
   \end{align*} \]
5. \[ \triangle TUV \]

\[
\begin{align*}
\angle U & = 88^\circ \\
\angle V & = 30^\circ \\
\angle T & = \text{?}
\end{align*}
\]

\[
m\angle t = \text{?}
\]

6. \[ \triangle QRS \]

\[
\begin{align*}
\angle R & = 35^\circ \\
\angle S & = 36^\circ \\
\angle Q & = \text{?}
\end{align*}
\]

\[
m\angle r = \text{?}
\]

7. \[ \triangle VWY \]

\[
\begin{align*}
\angle W & = 28^\circ \\
\angle Y & = 53^\circ \\
\angle V & = \text{?}
\end{align*}
\]

\[
m\angle y = \text{?}
\]

8. \[ \triangle ABC \]

\[
\begin{align*}
\angle C & = 29^\circ \\
\angle A & = 37^\circ \\
\angle B & = 47^\circ
\end{align*}
\]

\[
m\angle a = \text{?}
\]
Lesson 13.3  Right, Isosceles, and Equilateral Triangles

Find the unknown angle measures in each right triangle. The figures are not drawn to scale.

1.   \(ABC\) is a right triangle.
    Find the measure of \(\angle ACB\).

2.   \(PQR\) is a right triangle.
    Find the measure of \(\angle PRQ\).
Find the unknown angle measures. The figures are not drawn to scale.

3. \( ABC \) is a right triangle. Find the measure of \( \angle BCD \).

4. \( EBD \) is an isosceles triangle with \( ED = EB \), \( \angle BEC = 34^\circ \), and \( \angle CBD = 44^\circ \). Find the measure of \( \angle EBC \).
Find the unknown angle measures in each figure. The figures are not drawn to scale.

5. \( \triangle AOB \) is an isosceles triangle. \( OA = OB \).
   \( \angle AOC \) is a right triangle.
   Find the measure of \( \angle OCB \)

6. \( \triangle ABC \) is an equilateral triangle and \( \triangle ACD \) is an isosceles triangle.
   Find the measure of \( \angle ADC \).
7. \(ABCDEF\) is a 6-sided figure. All the triangles are equilateral triangles. Find the measure of \(\angle FAB\).

8. \(ABC\) is an equilateral triangle. \(BA = BD\). Find the measure of \(\angle AEC\).
Lesson 13.4  Triangle Inequalities

Complete. Measure the sides of the triangle to the nearest inch.

1. \( PQ = \) _______ in.  \( QR = \) _______ in.  \( PR = \) _______ in.

2. \( PQ + QR = \) _______ in.

3. \( PQ + PR = \) _______ in.

4. \( PR + QR = \) _______ in.

Use your answers in Exercises 1 to 4. Fill in the blanks with Yes or No.

5. Is \( PQ + QR > PR? \)  \( \) Yes

6. Is \( PQ + PR > QR? \)  \( \) Yes

7. Is \( PR + QR > PQ? \)  \( \) Yes
Complete. Measure the sides of the triangle to the nearest centimeter.

8. $BC = \underline{\quad} \text{cm} \quad AB = \underline{\quad} \text{cm} \quad AC = \underline{\quad} \text{cm}$

9. $AB + BC = \underline{\quad} \text{cm}$

10. $AB + AC = \underline{\quad} \text{cm}$

11. $BC + AC = \underline{\quad} \text{cm}$

Use your answers in Exercises 8 to 11. Write the sides of the triangle to make the inequalities true.

12. $AB + BC > \underline{\quad}$

13. $AB + AC > \underline{\quad}$

14. $BC + AC > \underline{\quad}$
The lengths of two sides of each triangle are given. Name a possible length for the third side. The given lengths are in whole centimeters or inches.

15. In triangle $XYZ$, the length of $ZY$ is greater than 2 inches. A possible length of $ZY$, rounded to the nearest inch, is _________.

16. In triangle $EFG$, the length of $EG$ is greater than 4 centimeters. A possible length of $EG$, rounded to the nearest centimeter, is _________.

The lengths of two sides of each triangle are given. Name a possible length for the third side. The given lengths are in whole centimeters or whole inches.

17. In triangle $STU$, the length of $UT$ is less than 10 centimeters. A possible length of $UT$, rounded to the nearest centimeter, is ________.

18. In triangle $PQR$, the length of $RQ$ is greater than 3 inches. The possible length of $RQ$, rounded to the nearest inch, is ________.
Lesson 13.5  Parallelogram, Rhombus, and Trapezoid

Find the unknown angle measures. The figures are not drawn to scale.

1. $DEFG$ is a parallelogram and $GF = GH$.
   Find the measure of $\angle y$.

2. $PQRS$ is a parallelogram and $RST$ is a right triangle.
   Find the measures of $\angle PSR$ and $\angle RST$. 
3. \(ABCD\) and \(ADEF\) are parallelograms. Find the measure of \(\angle EDC\).

4. \(PQRS\) is a rhombus and \(PR = TR\). Find the measure of \(\angle PQR\).
5. \(WXYZ\) is a rhombus and \(\overline{WV}\) is a line segment. Find the measure of \(\angle VYZ\).

6. \(ABCD\) is a rhombus. \(\overline{AE}\) is a line segment. Find the measure of \(\angle x\).
7. \(PQRS\) is trapezoid and \(SR \parallel PQ\). 
\(SR = PR\). Find the measure of \(\angle PRQ\).

8. \(ABCD\) is a trapezoid. \(AB \parallel DC\) and \(CB = CD\).
\(FE\) is a line.
Find the measure of \(\angle BAD\).
Put on Your Thinking Cap!

The figures are not drawn to scale. Find the unknown angle measures.

1. \(PQRS\) and \(STUV\) are parallelograms and \(PT = PU\).
   Find the measure of \(\angle RSV\).

2. \(PQRS\) is a parallelogram and \(ST = SP\).
   Find the measure of \(\angle \alpha\).
3. \(ABCD\) is a square and \(AEDF\) is a rhombus. Find the measure of \(\angle CDE\).

4. \(BDEG\) is a trapezoid and \(GF \parallel BC\). \(ABC\) and \(AEF\) are isosceles triangles. Find the measures of \(\angle x\) and \(\angle y\).
5. In the figure, $PS = PR = RQ$ and the measure of $\angle STP$ is twice the measure of $\angle TPS$. Find the measures of $\angle x$ and $\angle y$.

6. $ABC$ is an equilateral triangle. $CEF$ is an isosceles triangle, where $FC = FE$, $m\angle CED = 54^\circ$, and $m\angle CFE = 118^\circ$. Find the measures of $\angle x$ and $\angle y$. 
7. \(ABCD\) is a rectangle. \(FA = FE\) and \(FB = FG\). Find the measures of \(\angle x\) and \(\angle y\).

8. \(ABC\) is a right triangle, \(BG\) is a line segment, and \(m\angle ABC = m\angle CDE\). \(m\angle ACB = 90^\circ\) and \(AB \parallel DE\). Find the measures of \(\angle x\) and \(\angle y\).