Worksheet 1  Classifying Triangles

The figures are not drawn to scale.

Write true or false for each statement.

Triangle ABC is an equilateral triangle.

1. Any two sides are equal. ______
2. All the angles measure 60°. ______
3. A right triangle can also be an equilateral triangle. ______
4. An equilateral triangle can also be an isosceles triangle. ______
5. An isosceles triangle can never be an equilateral triangle. ______

Put a check in the box if the triangle is an equilateral triangle.

6. ______
7. ______
8. ______
Write true or false for each statement.
Triangle \( PQR \) is an isosceles triangle.

9. Two sides are equal. 
10. Any two angles are equal. 
11. A triangle with three equal sides can also be an isosceles triangle. 
12. A right triangle can also be an isosceles triangle.

Put a check in the box if the triangle is an isosceles triangle.

13. 

14. 

15. 

Write true or false for each statement.
Triangle \( WXY \) is a scalene triangle.

16. All three sides are of different lengths. 
17. All three angle measures are different.
Put a check in the box if the triangle is a scalene triangle.

18.  

19.  

20.  

Write true or false for each statement.

Triangle $ABC$ is a right triangle.

21. One angle is $90^\circ$.  

22. The sum of any two angle measures is $90^\circ$.  

23. The sum of all the angle measures is $90^\circ$.  

Put a check in the box if the triangle is a right triangle.

24.  

25.  

26.
Write true or false for each statement.

Triangle $STU$ is an obtuse triangle.

27. All the angles measure less than $90^\circ$. ______

28. An obtuse triangle can also be an isosceles or a scalene triangle. ______

Put a check in the box if the triangle is an obtuse triangle.

29.  

30.  

31.  

Write true or false for each statement.

Triangle $PQR$ is an acute triangle.

32. All the angles measure greater than $90^\circ$. ______

33. An acute triangle can also be an equilateral, isosceles, or scalene triangle. ______

Put a check in the box if the triangle is an acute triangle.

34.  

35.  

36.  

Worksheet 2     Measures of Angles of a Triangle

The figures are not drawn to scale.
Write true or false for each statement.
Triangle XYZ has three unequal sides.

1. $\angle X$, $\angle Y$, and $\angle Z$ are the three angles of the triangle. __________  

2. The sum of the measures of $\angle X$, $\angle Y$, and $\angle Z$ is 180°. __________  

3. All the angles must measure less than 90°. __________  

4. At most one angle measure is equal to or greater than 90°. __________  

Complete. Find the unknown angle measures.

Example

$\angle B = 76°$
5. \( m \angle Y = \) 

6. \( m \angle M = \) 

7. \( m \angle T = \) 

8. \( PR \) is a line segment. Find the measure of \( \angle PQS \).

9. \( AC \) is a line segment. Find the measure of \( \angle BDC \).
10. \( \triangle ABC \) is a right triangle.

\[ A \quad B \quad D \quad C \]

\[ \overline{AD} \] is perpendicular to \( \overline{BC} \) at \( D \). Find the measure of \( \angle DAC \).

a. Find the measure of \( \angle C \).

b. \( \overline{AD} \) is perpendicular to \( \overline{BC} \) at \( D \). Find the measure of \( \angle DAC \).
Complete.

11. \[\angle \quad + \angle \quad + \angle \quad = 180^\circ\]

Write true or false for each statement.

12. \(m\angle ABC + m\angle BAC + m\angle BCA = 90^\circ\)  
   
13. \(m\angle ADC + m\angle DAC + m\angle BAC + m\angle ABC = 180^\circ\)  
   
14. \(m\angle ADC + m\angle DAC + m\angle ACD = 180^\circ\)  
   
Use the figure below to complete Exercises 15 to 18.

Write 3 sets of angles that total 180°.

15. \( m\angle \) \( m\angle \) \( m\angle \)

16. \( m\angle \) \( m\angle \) \( m\angle \)

17. \( m\angle \) \( m\angle \) \( m\angle \)

Write a set of 4 angles that total 180°.

18. \( m\angle \) \( m\angle \) \( m\angle \) \( m\angle \)
Triangle \(ABC\) is not drawn to scale.

Write true or false for each statement.

19. If \(m\angle B + m\angle C = 90^\circ\), then \(m\angle A\) is \(90^\circ\). [________]

20. If \(m\angle A = 90^\circ\), then \(m\angle B\) is less than \(90^\circ\). [________]

Write 3 different possible measures for \(\angle B\) and \(\angle C\).

21. If \(m\angle A = 80^\circ\), then \(m\angle B = \) _________ \(m\angle C = \) _________

22. If \(m\angle A = 80^\circ\), then \(m\angle B = \) _________ \(m\angle C = \) _________

23. If \(m\angle A = 80^\circ\), then \(m\angle B = \) _________ \(m\angle C = \) _________
Worksheet 3  Right, Isosceles, and Equilateral Triangles

Find the unknown angle measure in each right triangle.

Example

This is a right triangle.

\[ \triangle \]

\[ \angle x = \boxed{34}^\circ \]

1. \[ \triangle \]

\[ \angle y = \boxed{\phantom{0}}^\circ \]

2. \[ \triangle \]

\[ \angle z = \boxed{\phantom{0}}^\circ \]

Find the unknown angle measure in each isosceles triangle.

Example

This is an isosceles triangle.

\[ \triangle \]

\[ \angle p = \boxed{70}^\circ \]

3. \[ \triangle \]

\[ \angle q = \boxed{\phantom{0}}^\circ \]

4. \[ \triangle \]

\[ \angle r = \boxed{\phantom{0}}^\circ \]
Find the unknown angle measure(s) in each isosceles triangle.

Example

\[
\begin{align*}
\text{m} \angle MLN &= 55^\circ \\
\text{m} \angle LNM &= 70^\circ 
\end{align*}
\]

5.

\[
\begin{align*}
\text{m} \angle FEG &= \\
\text{m} \angle EFG &= 
\end{align*}
\]

6. \(PS\) is a ray.

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

7. \(AC\) is a ray.

\[
\begin{align*}
\text{m} \angle n &= 
\end{align*}
\]
8. $ABC$ is an isosceles triangle with sides $AB = AC$.
   a. $m\angle A = 70^\circ$
      Find the measure of $\angle C$.
   
   b. Point $D$ is on segment $BC$. $\overline{AD}$ is perpendicular to $\overline{BC}$.
      Find the measure of $\angle DAC$.

9. $ABC$ is an isosceles triangle with sides $AB = AC$.
   a. $m\angle A = 105^\circ$
      Find the measure of $\angle C$.
   
   b. Point $D$ is on segment $BC$.
      $m\angle DAC = 25^\circ$
      Find the measure of $\angle ADB$.

Find the unknown angle measure(s).

Example

Explain $m\angle a = 60^\circ$

This is an **equilateral triangle**.
Worksheet 4  Triangle Inequalities

The figure is not drawn to scale.

Example

Complete.

```
WX = 6 cm  

WY = 6 cm  

XY = 4 cm

WX + XY = 10 cm

XY + WY = 10 cm

WX + WY = 12 cm
```

Look at the triangle WXY. Fill in the blanks with Yes or No.

Is WX + XY > WY?  Yes

Is XY + WY > WX?  Yes

Is WX + WY > XY?  Yes

These are inequalities.
The figure is not drawn to scale. Complete.

1. $PQ = \underline{\hspace{1cm}}$ in.
2. $QR = \underline{\hspace{1cm}}$ in.
3. $PR = \underline{\hspace{1cm}}$ in.
4. $PQ + QR = \underline{\hspace{1cm}}$ in.
5. $QR + PR = \underline{\hspace{1cm}}$ in.
6. $PQ + PR = \underline{\hspace{1cm}}$ in.

Look at the triangle $PQR$. Fill in the blanks with Yes or No.

7. Is $PQ + QR > PR$? $\underline{\text{Yes}}$
8. Is $QR + PR > PQ$? $\underline{\text{Yes}}$
9. Is $PQ + PR > QR$? $\underline{\text{Yes}}$
Show whether it is possible to form triangles with these sides.

10. 2 in., 3 in., 5 in.

11. 4 cm, 5 cm, 10 cm

12. 6 cm, 7 cm, 8 cm
Find all the possible lengths for the missing side. The lengths are in whole centimeters or whole inches.

Example

DF is greater than 4 centimeters.

What are the possible lengths of $\overline{DF}$?

$DE + EF = 4\text{ cm} + 3\text{ cm} = 7\text{ cm}$

$DE + EF > DF$

$7\text{ cm} > DF$

So, $DF$ is greater than 4 centimeters and less than 7 centimeters. The possible lengths of $DF$ are 5 centimeters and 6 centimeters.

13. In triangle $ABC$, $AB = 5$ inches, $BC = 6$ inches, and $AC$ is greater than 4 inches. What are the possible lengths of $\overline{AC}$?

14. $XYZ$ is a triangle in which $XY = 11$ centimeters and $YZ = 15$ centimeters. The length of $XZ$ is in whole centimeters and is greater than 20 centimeters. What are the possible lengths of $\overline{XZ}$?
Worksheet 5  Parallelogram, Rhombus, and Trapezoid

The figures are not drawn to scale.

Write true or false for each statement.

The figure is a parallelogram.

1. All sides are of equal length. 
2. All angle measures are equal. 
3. Opposite sides of the parallelogram are of equal length. 
4. The measures of the opposite angles of the parallelogram are equal. 

Put a check in the box if the figure is a parallelogram.

5.  
6.  


Reteach 5B  171
Find the unknown angle measure(s) in each parallelogram.

Example

This is a parallelogram. The opposite sides are parallel.

\[ m \angle a = 180^\circ - 132^\circ = 48^\circ \]

7. 

8. 

9. 

10. 

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Write true or false for each statement.

The figure is a rhombus.

11. All the sides of a rhombus are of equal length.

12. All the angle measures of a rhombus are equal.

13. Opposite sides of a rhombus are of equal length.

14. The measures of the opposite angles of a rhombus are equal.

15. A rhombus is also a parallelogram.

Put a check in the box if the figure is a rhombus.

16.  

17.  

Find the unknown angle measure(s) in each rhombus.

Example

\[
m\angle a = 180° - 148° \\
= 32°
\]

A rhombus is a special kind of parallelogram.

18. 

19. 

20. 

21.
Write true or false for each statement.
The figure is a trapezoid.

22. All the sides of a trapezoid are of equal length. ________

23. All the angle measures of a trapezoid are equal. ________

24. A trapezoid has only one pair of opposite sides of equal length. ________

25. A trapezoid has only one pair of opposite angles of equal measure. ________

26. A trapezoid is also a parallelogram. ________

Put a check in the box if the figure is a trapezoid.

27. ________

28. ________
Find the unknown angle measure(s) in each trapezoid.

Example

This is a trapezoid. One pair of opposite sides is parallel.

\[ m\angle x + \frac{68^\circ}{m\angle x} = 180^\circ \]

\[ m\angle x = \frac{180^\circ}{m\angle x} - \frac{68^\circ}{m\angle x} = 112^\circ \]

29. 

30. 

31. 

32. 

33. 

34. 

35. 