

Name _____

Classify Triangles by Angles

Essential Question How can you classify triangles by the size of their angles?



Geometry—4.G.2
Also 4.G.1

MATHEMATICAL PRACTICES
MP.3, MP.4, MP.6, MP.7



Unlock the Problem

A triangle is a polygon with three sides and three angles. You can name a triangle by the vertices of its angles.

Triangle	Possible Names	
	$\triangle ABC$	$\triangle ACB$
	$\triangle BCA$	$\triangle BAC$
	$\triangle CAB$	$\triangle CBA$



When you see " $\triangle ABC$," say "triangle ABC."

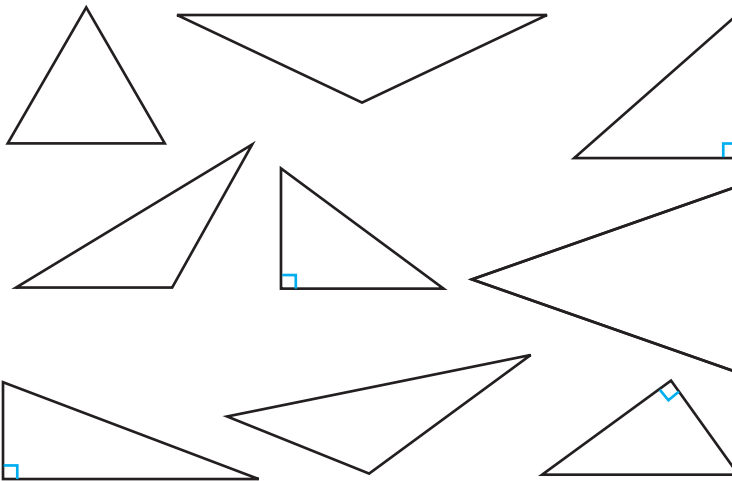
An angle of a triangle can be right, acute, or obtuse.



Activity 1 Identify right, acute, and obtuse angles in triangles.

Materials ■ color pencils

Use the Triangle Color Guide to color the triangles below.



Triangle Color Guide

RED	one right angle
BLUE	one obtuse angle
ORANGE	three acute angles

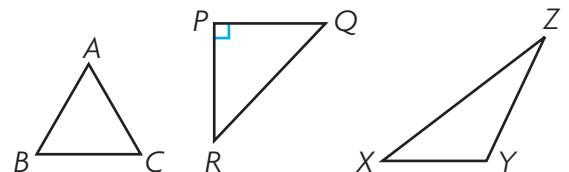
Math Talk

Mathematical Practices

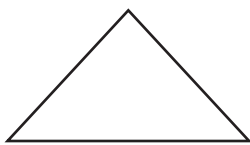
Can a triangle have more than one obtuse angle?
Explain.

Try This!

- Name the triangle with one right angle. _____
- Name the triangle with one obtuse angle. _____
- Name the triangle with three acute angles. _____

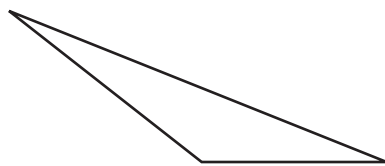


An **acute triangle** is a triangle with three acute angles.



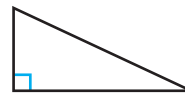
Acute Triangle

An **obtuse triangle** is a triangle with one obtuse angle.



Obtuse Triangle

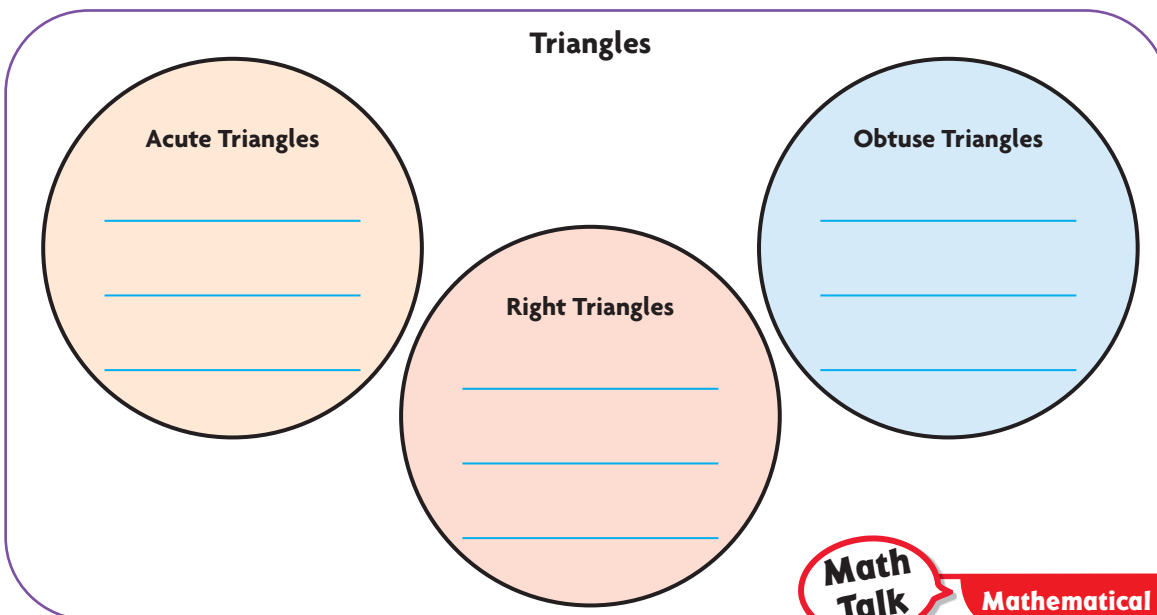
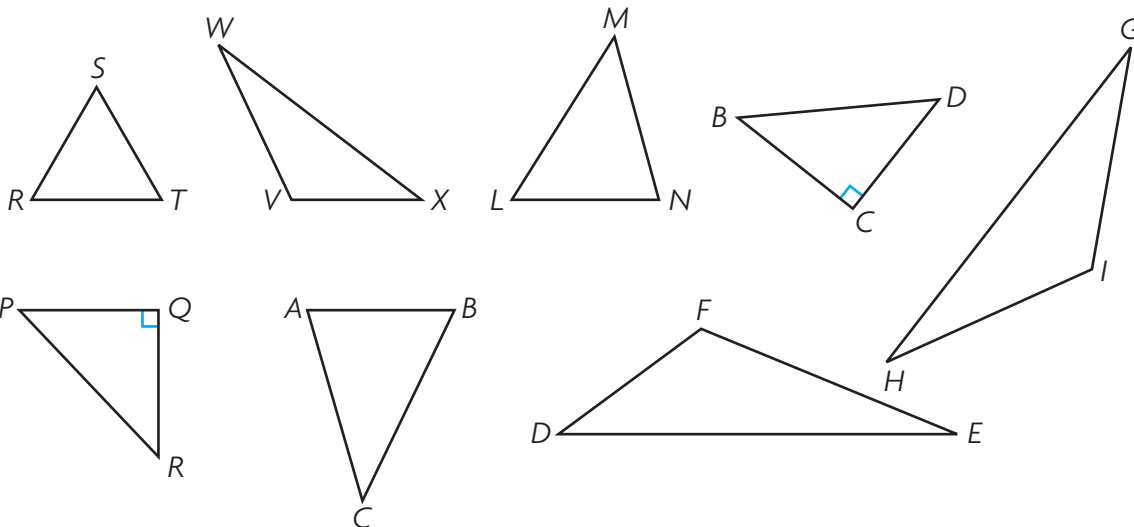
A **right triangle** is a triangle with one right angle.



Right Triangle

Activity 2 Use a Venn diagram to classify triangles.

Write the names of the triangles in the Venn diagram.



**Math
Talk**

Mathematical Practices

Explain why the three circles in this Venn diagram do not overlap.

Name _____

Share and Show



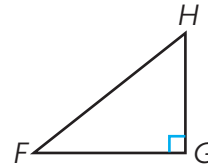
1. Name the triangle. Tell whether each angle is *acute*, *right*, or *obtuse*.

A name for the triangle is _____.

$\angle F$ is _____.

$\angle G$ is _____.

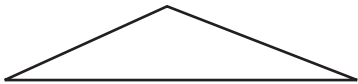
$\angle H$ is _____.



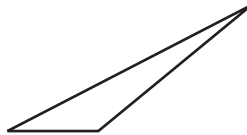
Classify each triangle. Write *acute*, *right*, or *obtuse*.



2.

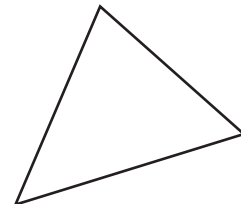


3.





4.



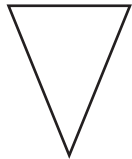
On Your Own

Classify each triangle. Write *acute*, *right*, or *obtuse*.

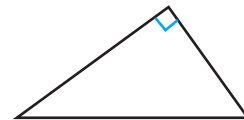
5.



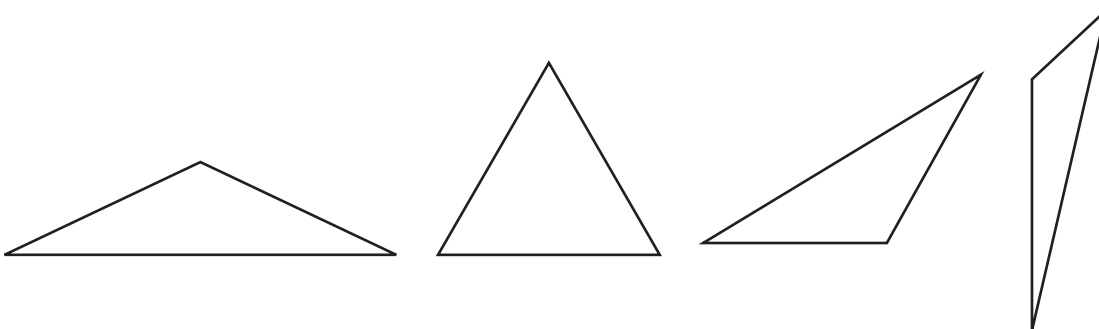
6.



7.



8. **THINK SMARTER** Cross out the figure that does not belong. Explain.



Problem Solving • Applications

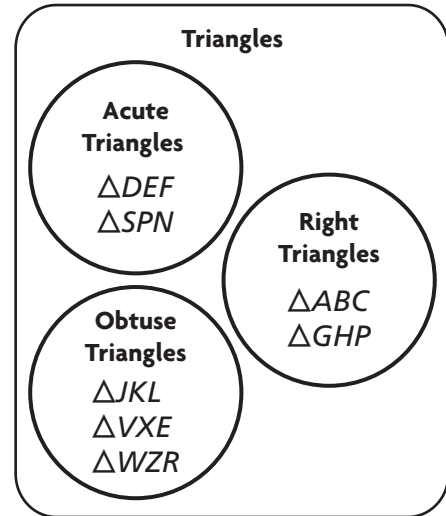


Use the Venn diagram for 9–10.

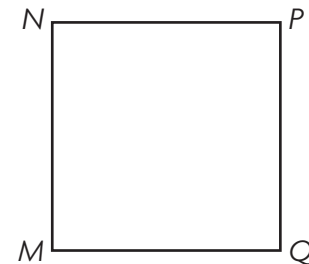
9. **THINK SMARTER** Which triangles do NOT have an obtuse angle? Explain.



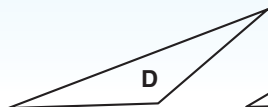
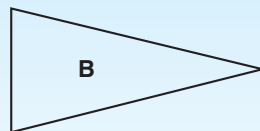
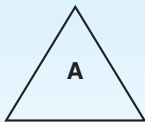
10. **MATHEMATICAL PRACTICE 6** How many triangles have *at least* two acute angles? **Explain.**



11. **GO DEEPER** Use square $MNPQ$ shown at the right. Draw a line segment from point M to point P . Name and classify the triangles formed by the line segment.



12. **THINK SMARTER** Write the letter of the triangle under its correct classification.



Acute Triangle	Obtuse Triangle	Right Triangle