Name _____

Classify Triangles by Angles

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

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.

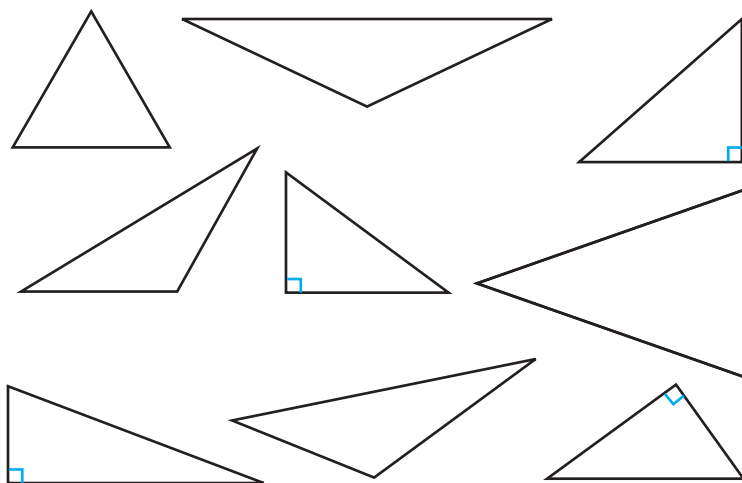| Triangle	Possible Names	
	△ABC	△ACB
	△BCA	△BAC
	△CAB	△CBA

Read Math

When you see "△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

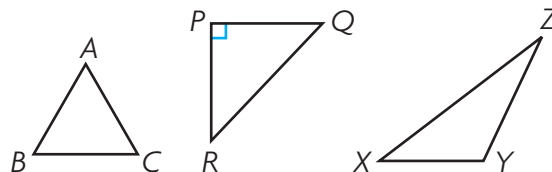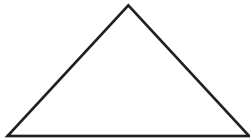| RED	one right angle
BLUE	one obtuse angle
ORANGE	three acute angles

Math Talk

MATHEMATICAL PRACTICES ⑦

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

Try This!

a. Name the triangle with one right angle. _____

b. Name the triangle with one obtuse angle. _____

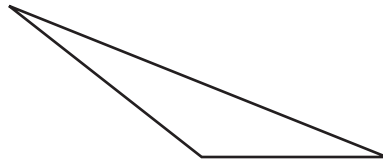**c.** Name the triangle with three acute angles. _____

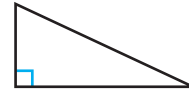| An **acute triangle** is a triangle with three acute angles.	An **obtuse triangle** is a triangle with one obtuse angle.	A **right triangle** is a triangle with one right angle.
Acute Triangle	Obtuse Triangle	Right Triangle

🔑 Activity 2 Use a Venn diagram to classify triangles.
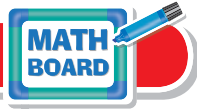
Write the names of the triangles in the Venn diagram.

Triangles

Acute Triangles
_____
_____
_____

Right Triangles
_____
_____
_____

Obtuse Triangles
_____
_____
_____

Math Talk
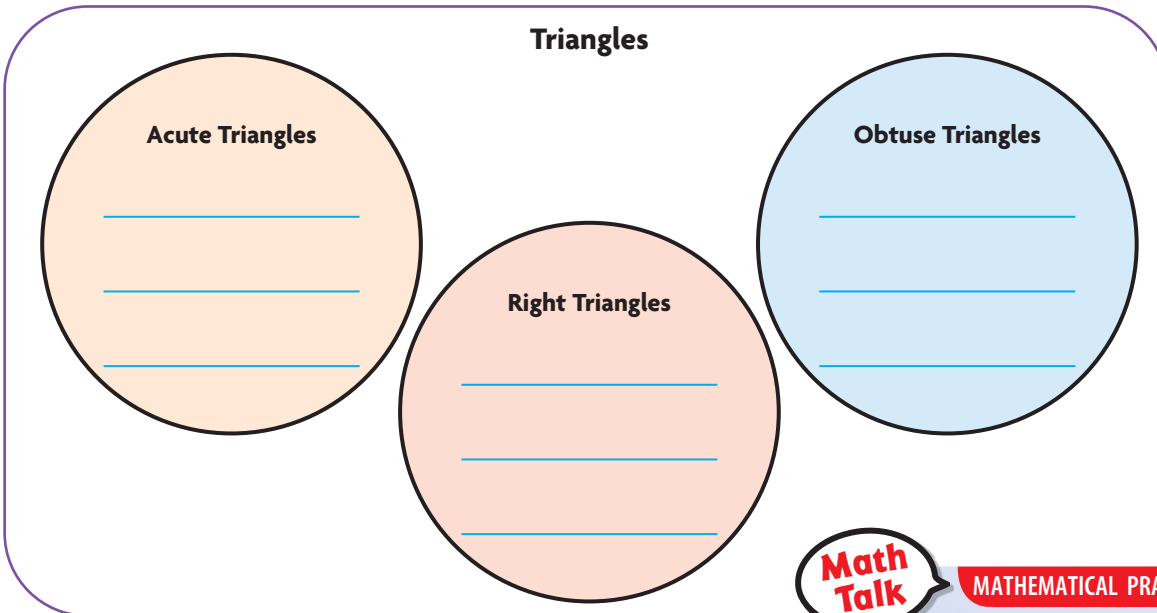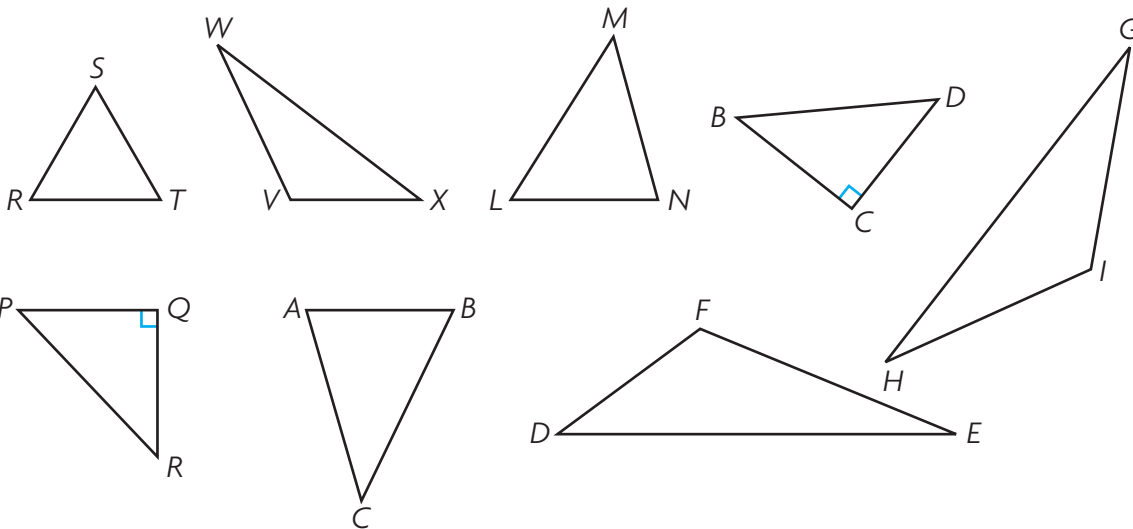
Interpret a Result Explain why the three circles in this Venn diagram do not overlap.

Name _____

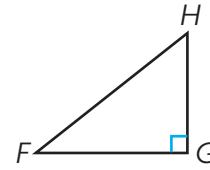**1.** Name the triangle. Tell whether each angle is *acute, right,* or *obtuse.*

A name for the triangle is _____.

∠F is _____.

∠G is _____.

∠H is _____.
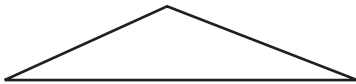
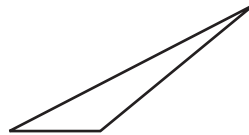**Classify each triangle. Write *acute, right,* or *obtuse.***
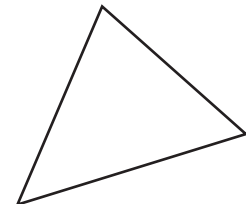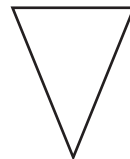
2.

_____

3.

_____

4.

_____

On Your Own

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

5.

_____

6.

_____

7.

_____

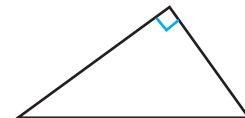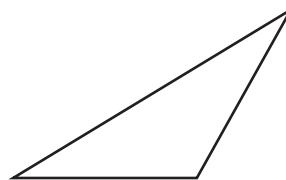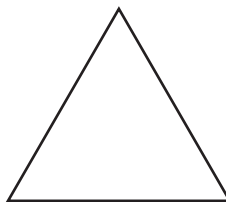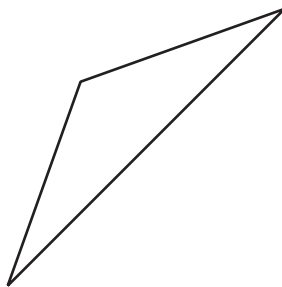**8.** **THINK SMARTER** Cross out the figure that does not belong. Explain.
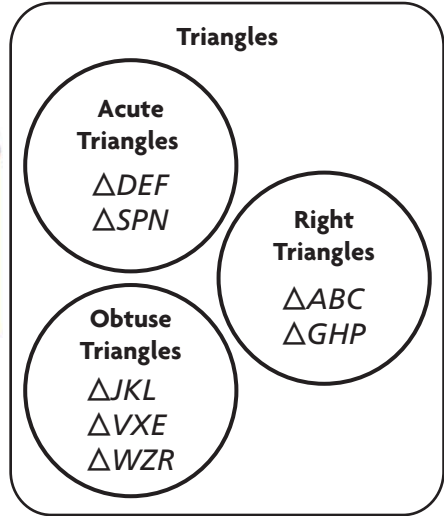
_____

## Problem Solving • Applications **Real World**

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.**

_____

_____

_____

_____

Triangles

Acute Triangles
△DEF
△SPN

Right Triangles
△ABC
△GHP

Obtuse Triangles
△JKL
△VXE
△WZR

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

_____

_____

_____

N _____ P

M _____ Q
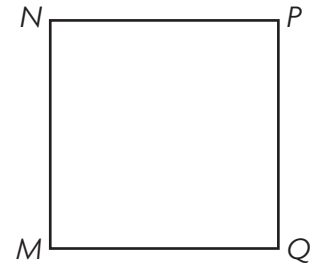
12. **THINK SMARTER** Write the letter of the triangle under its correct classification.
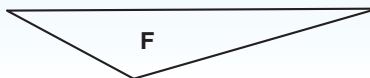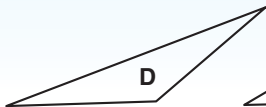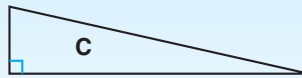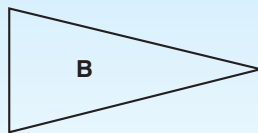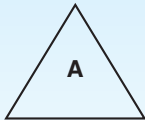
A

B

C

D

E

F

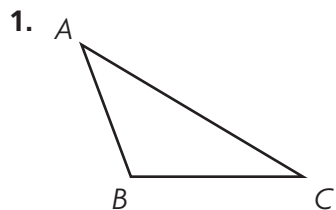| Acute Triangle	Obtuse Triangle	Right Triangle

Classify Triangles by Angles

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

1.

Think: Angles *A* and *C* are both acute.
Angle *B* is obtuse.

_____**obtuse**_____

2.

3.

4.

_____   _____   _____

Problem Solving Real World
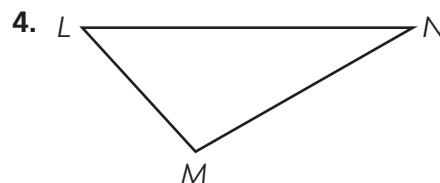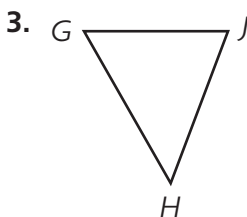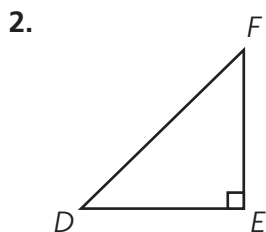
5. Use figure *ABCD* below. Draw a line segment from point *B* to point *D*. Name and classify the triangles formed.
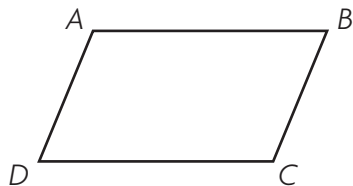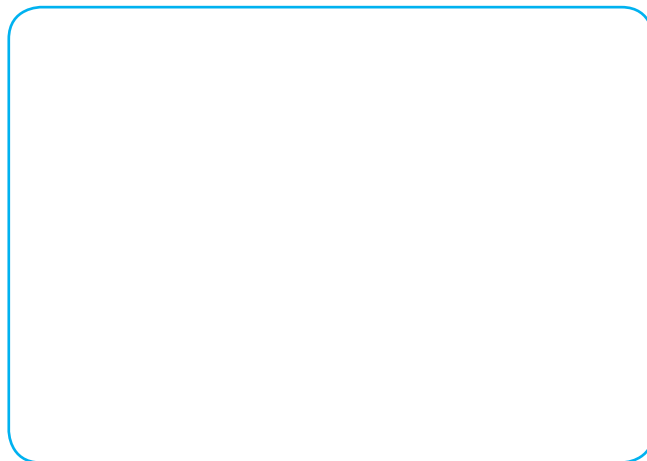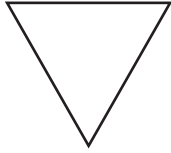

_____

_____

_____

6. **WRITE** ▶ *Math*   Draw and label an example of a right triangle, an acute triangle, and an obtuse triangle.
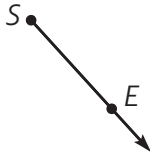
Lesson Check (4.G.A.2)

1. Stephen drew this triangle. How many obtuse angles does the triangle have?

2. Joan was asked to draw a right triangle. How many right angles are in a right triangle?

_____

_____

Spiral Review (4.OA.B.4, 4.NBT.B.5, 4.NF.C.5, 4.G.A.1)

3. Oliver drew the figure below to show light traveling from the Sun to Earth. Name the figure he drew.

4. Armon added $\frac{1}{10}$ and $\frac{8}{100}$. What is the sum of these fractions?

_____

_____

5. Sam counted out loud by 6s. Jorge counted out loud by 8s. What are the first three numbers both Sam and Jorge said?

6. A basketball team averaged 105 points per game. How many points did the team score in 6 games?

_____

_____