Name _____

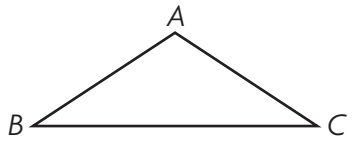
Classify Triangles by Angles

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

Common Core **Geometry— 4.G.A.2**
Also 4.G.A.1
MATHEMATICAL PRACTICES
MP3, MP4, MP6, MP7

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*

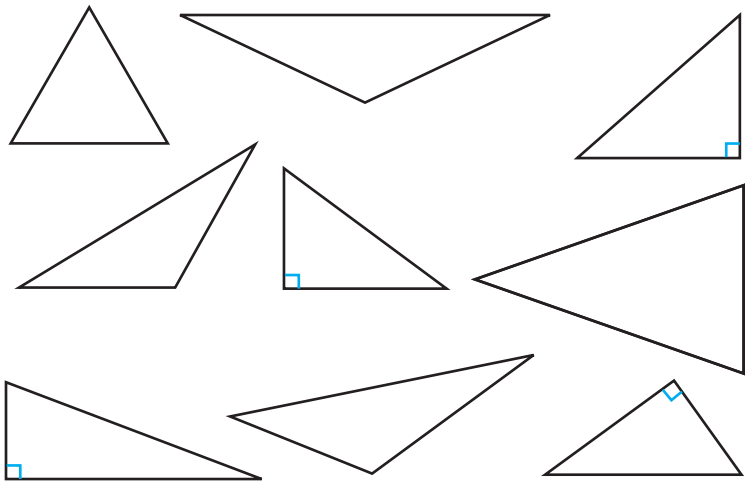
Read Math
When you see "△*ABC*," say "triangle *ABC*."

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

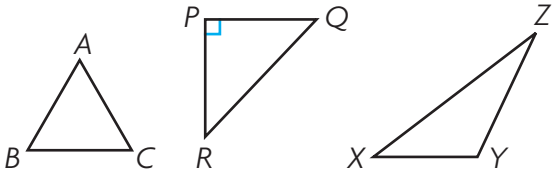
Look for Structure Can a triangle have more than one obtuse angle? Explain.

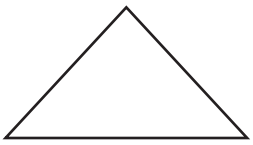
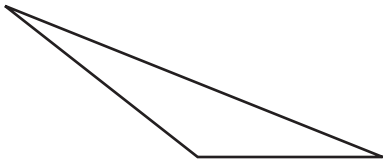
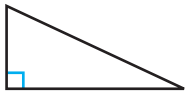
Try This!

a. Name the triangle with one right angle. _____

b. Name the triangle with one obtuse angle. _____

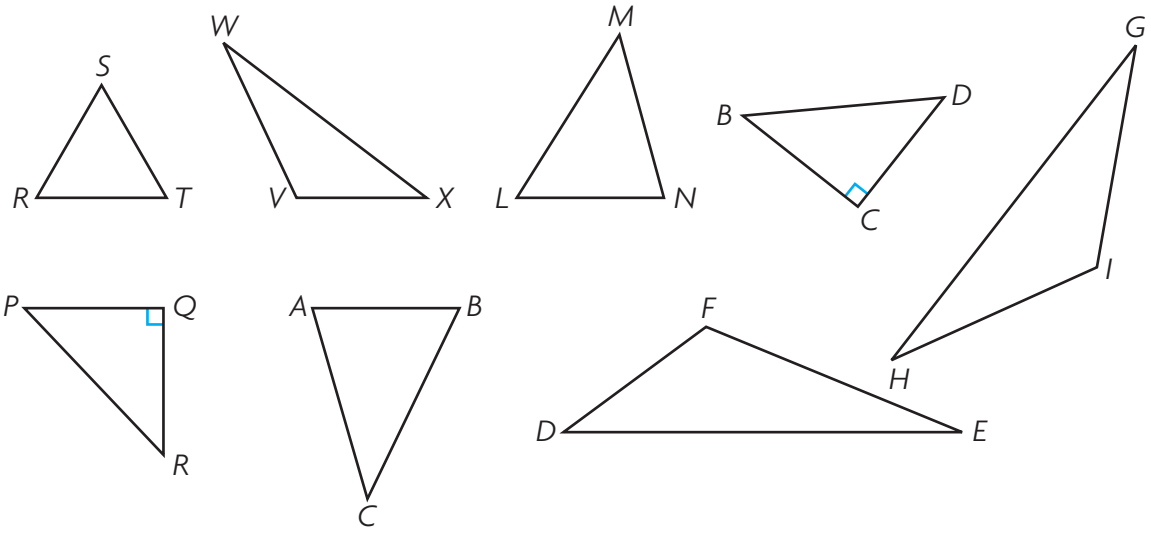
c. Name the triangle with three acute angles. _____

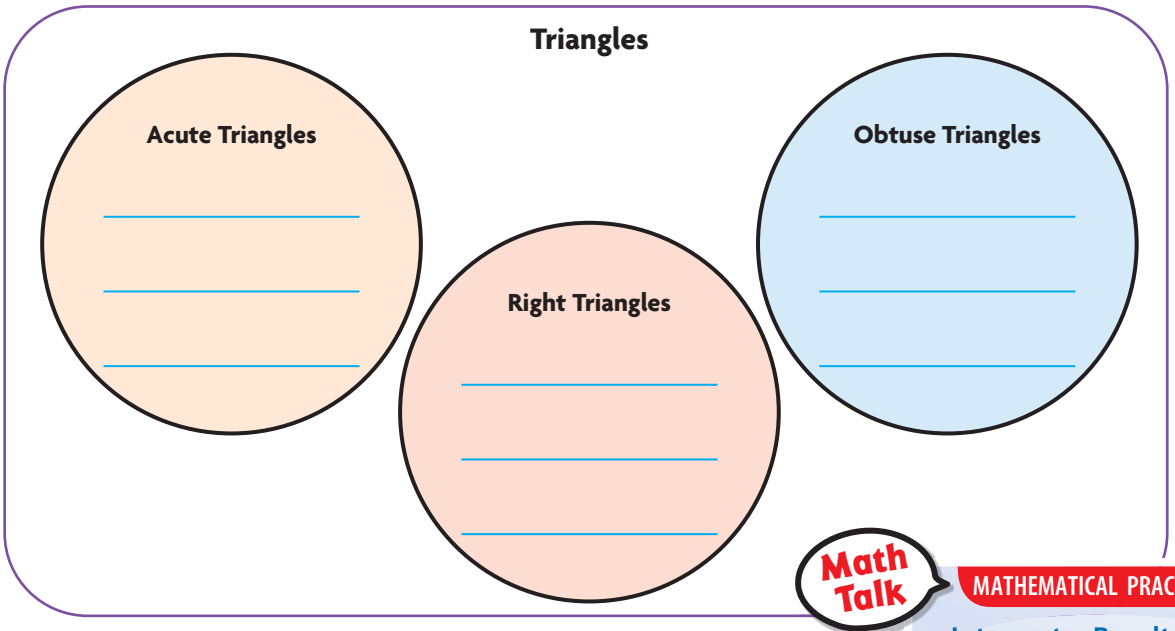


An **acute triangle** is a triangle with three acute angles.	An **obtuse triangle** is a triangle with one obtuse angle.	A **right triangle** is a triangle with one right angle.
		
Acute Triangle	**Obtuse Triangle**	**Right Triangle**

Activity 2 Use a Venn diagram to classify triangles.

Write the names of the triangles in the Venn diagram.





Math Talk

MATHEMATICAL PRACTICES 4

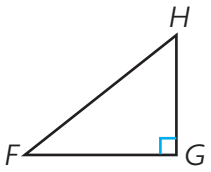
Interpret a Result Explain why the three circles in this Venn diagram do not overlap.

Name _____

Share and Show

MATH BOARD

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



A name for the triangle is _____.

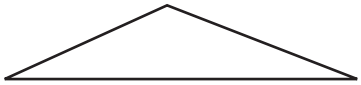
$\angle F$ is _____.

$\angle G$ is _____.

$\angle H$ is _____.

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

2.



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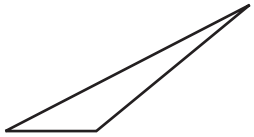
3.



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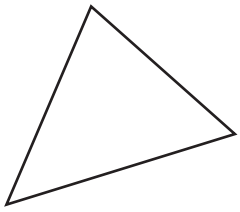
4.



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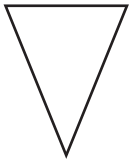
On Your Own

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

5.

_____

6.



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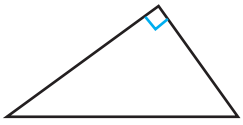
7.



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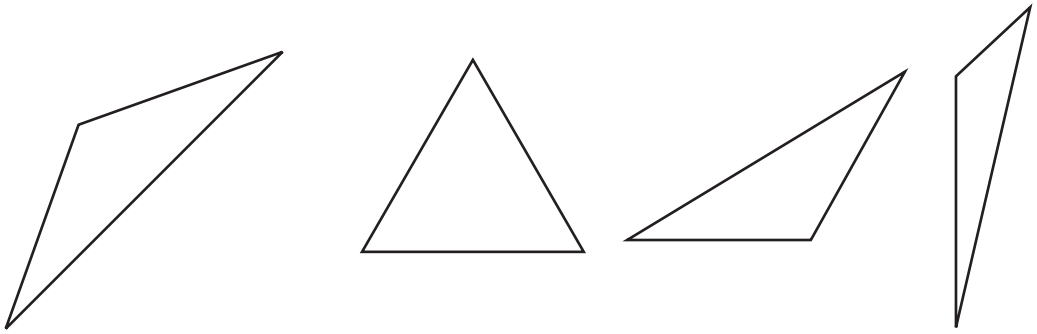
8. THINK SMARTER Cross out the figure that does not belong. Explain.



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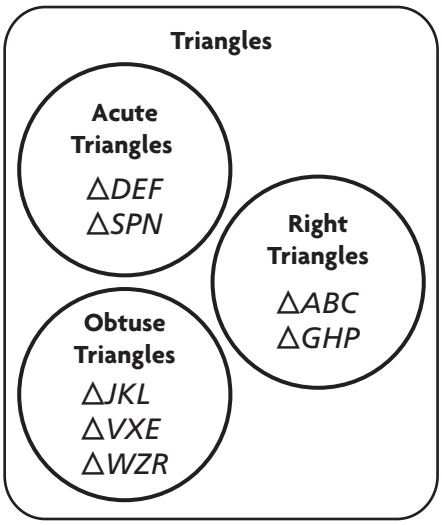
Problem Solving • Applications Real World

Use the Venn diagram for 9–10.



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

Math on the Spot

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

_____

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_____

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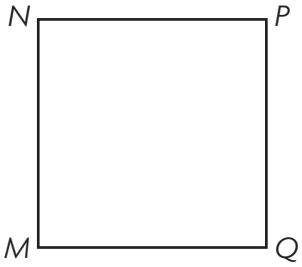
11. GO DEEPER Use the square shown at the right. Draw a line segment from point *M* to point *P*. Name and classify the triangles formed by the line segment.



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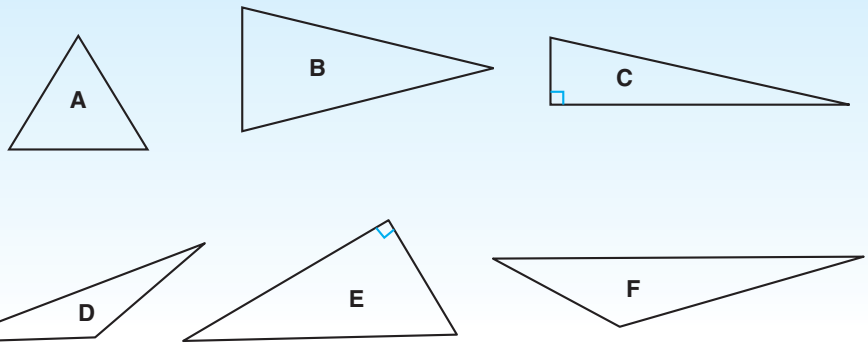
12. THINK SMARTER Write the letter of the triangle under its correct classification.



Acute Triangle	Obtuse Triangle	Right Triangle

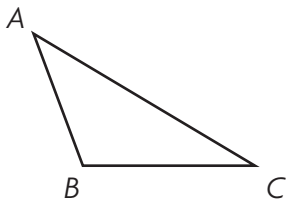
Name _____

Classify Triangles by Angles

COMMON CORE STANDARD—4.G.A.2
Draw and identify lines and angles and classify shapes by properties of their lines and angles.

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

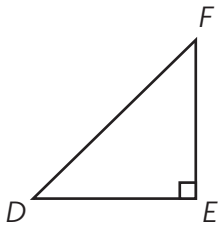
1.



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

obtuse

2.



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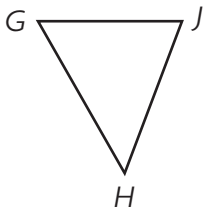
3.



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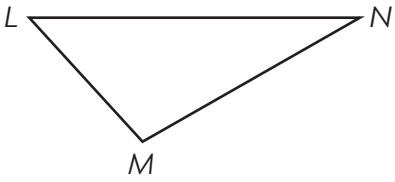

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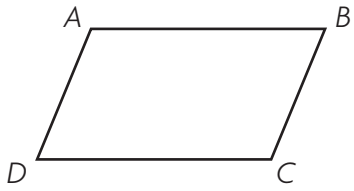
Problem Solving Real World

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



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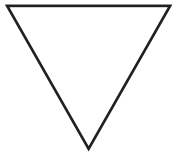
_____

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)

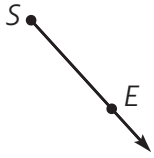
1. Stephen drew this triangle. How many obtuse angles does the triangle have?



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?

FOR MORE PRACTICE GO TO THE Personal Math Trainer