Exploring Triangles

At Home
At School
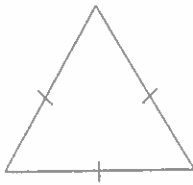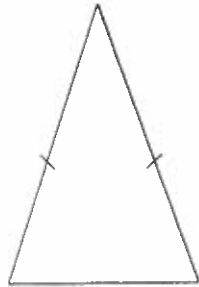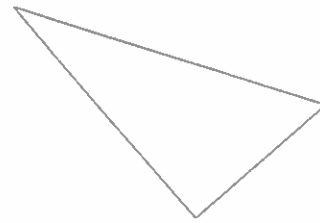
Quick Review

➤ We can name triangles by the number of equal sides.

An **equilateral triangle** has 3 equal sides. It has three 60° angles. It has 3 lines of symmetry.

An **isosceles triangle** has 2 equal sides. It has 2 equal angles. It has 1 line of symmetry.

A **scalene triangle** has no equal sides, no equal angles, and no lines of symmetry.

Try These

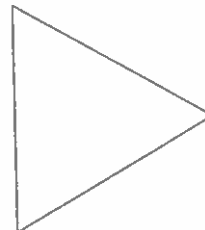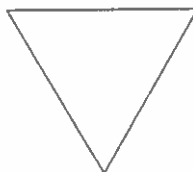1. Name each triangle as equilateral, isosceles, or scalene.

a)

b)

c)

d)

e)

f)
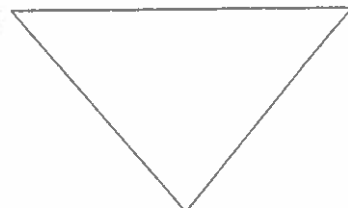
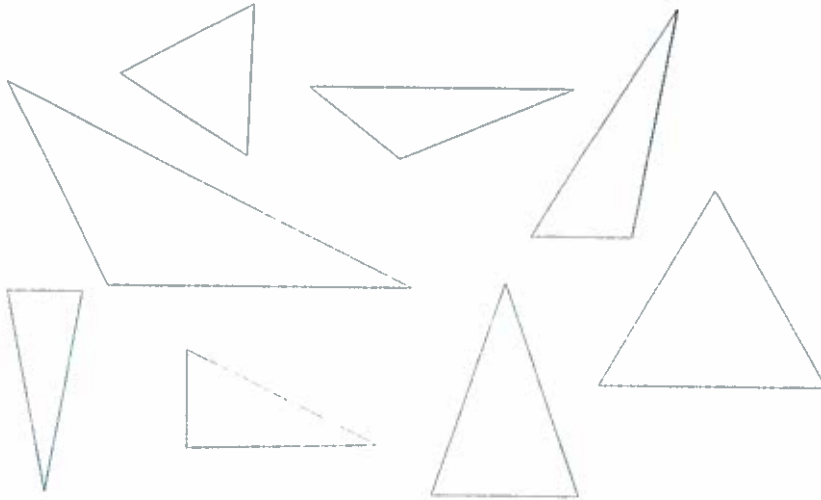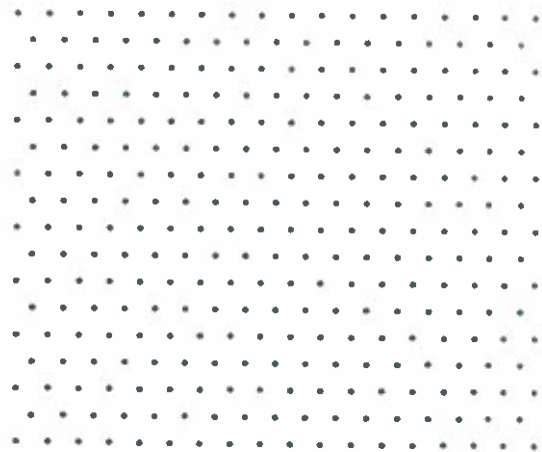## Practice

1. Write an S inside the triangles that are scalene.
    Write an I inside the triangles that are isosceles.
    Write an E inside the triangles that are equilateral.

2. a) Draw 3 different
       isosceles triangles.

    b) Draw 3 different equilateral
       triangles.

Stretch Your Thinking

Explain why it is not possible to make an equilateral triangle on a geoboard.
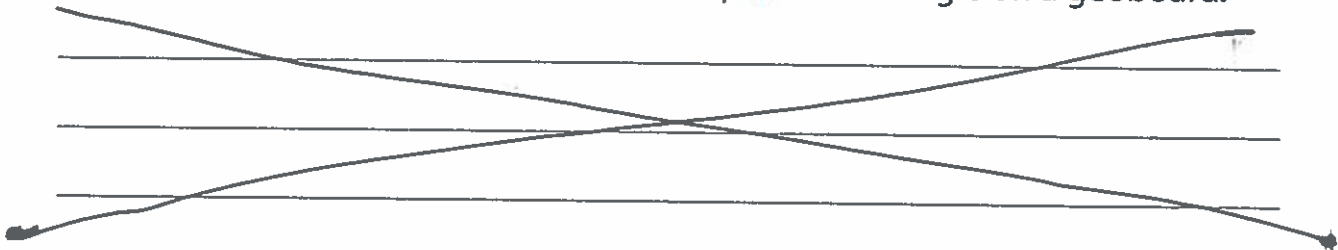
Naming and Sorting Triangles by Angles

Quick Review

An **acute triangle** has all angles less than 90°.

B
80°
A 40°   60° C
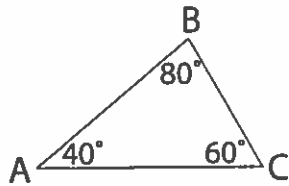
A **right triangle** has one 90° angle.

D
E ⌐ F
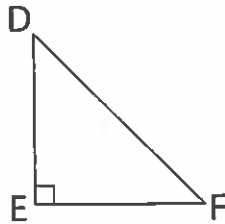
An **obtuse triangle** has one angle greater than 90°.

I
130°
G   H
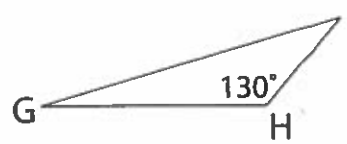
We can sort triangles in a Venn diagram.

70° 40°
70°

50° 50°
80°

45°
45°

68°
40°
50°   22°

Isosceles Triangles   Right Triangles
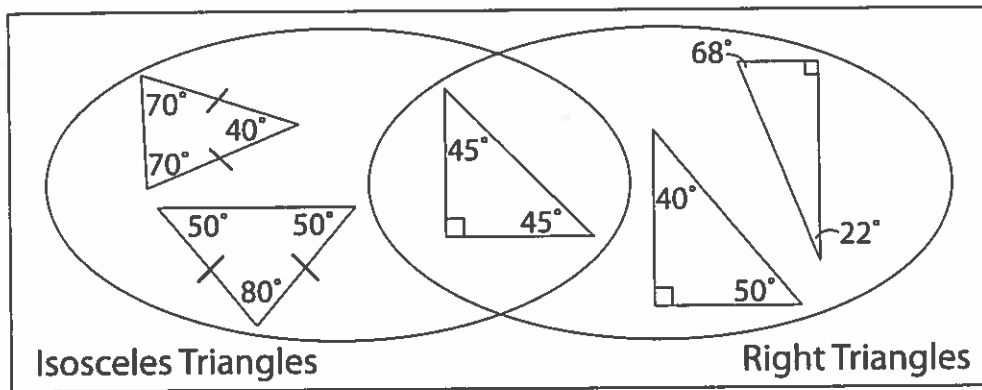
Try These

1. Name each triangle as an acute, a right, or an obtuse triangle.

   a)
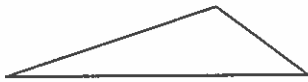
   b)
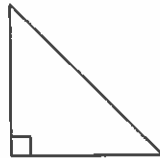
   c)

   _____   _____   _____
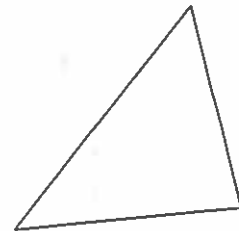
2. Which triangle in question 1 is isosceles? How do you know?

   _____

Practice

1. Play this game with a partner.
   You will need pencils and an open paper clip
   to use as a pointer.
   ➤ Player A spins the pointer and draws
      whichever triangle the pointer lands on.
   ➤ Player B takes a turn. Player B's triangle can
      touch, but not overlap.
   ➤ Continue taking turns. If you are unable to
      draw a triangle, you lose your turn.
   ➤ The last person to successfully draw a
      triangle is the winner.
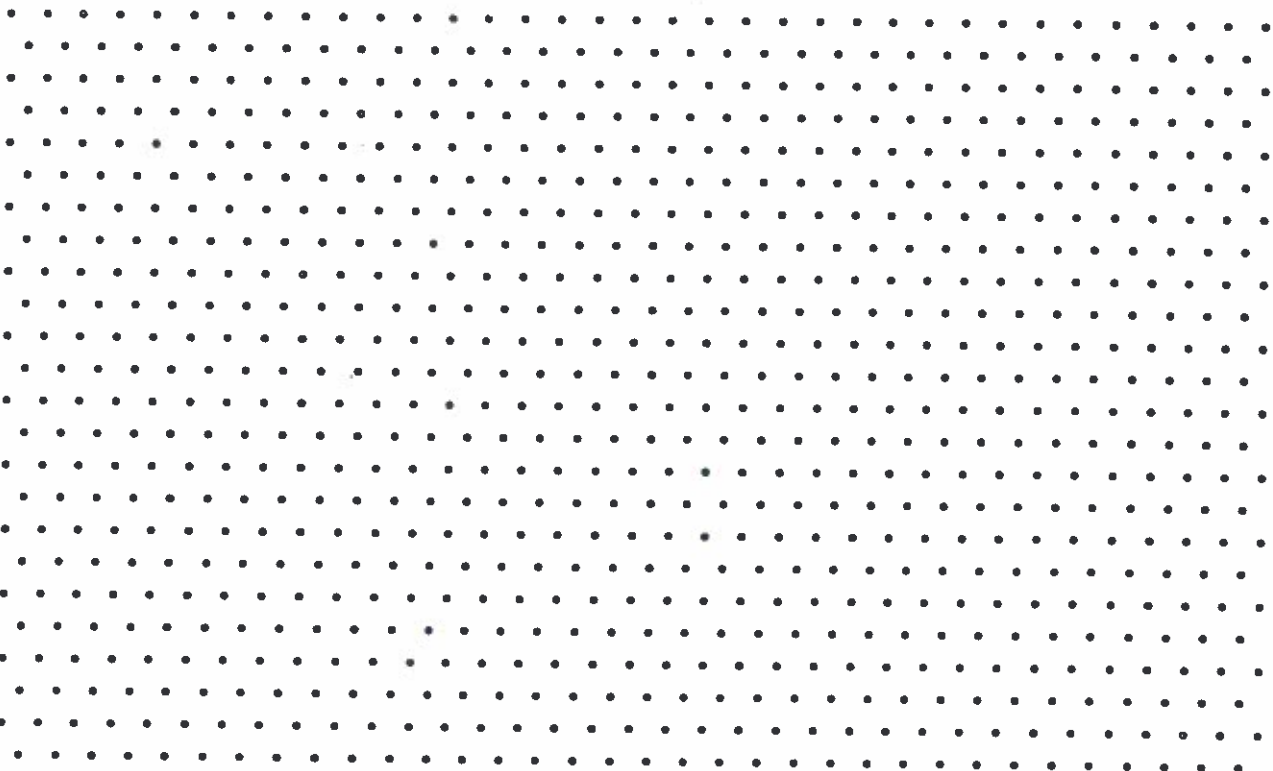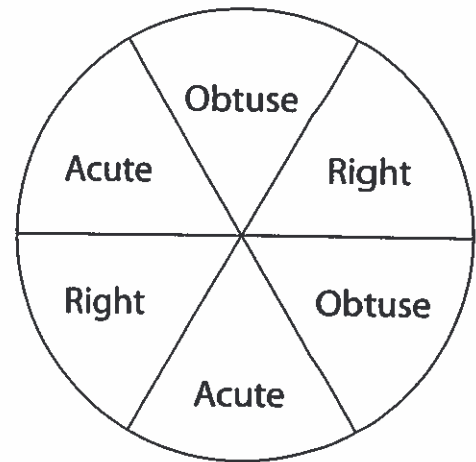
Stretch Your Thinking

Can you draw each triangle?
a) A triangle with an obtuse angle and 2 equal sides. _____
b) A triangle with a right angle and no equal sides. _____
c) A triangle with 3 acute angles and 2 of the angles are equal. _____
d) A triangle with 3 right angles. _____
e) A triangle with 3 equal sides and 1 obtuse angle. _____

Why was the store giving away batteries?

Find the answer that describes each triangle:
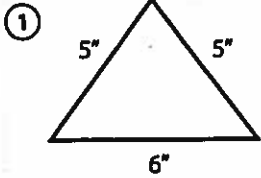
① 5" 5" 6"
- **E** scalene
- **O** isosceles
- **B** equilateral
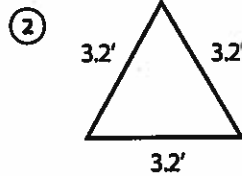
② 3.2' 3.2' 3.2'
- **R** scalene
- **I** isosceles
- **H** equilateral
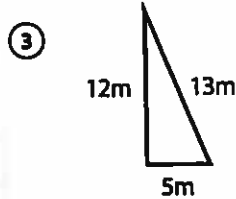
③ 12m 13m 5m
- **Y** scalene
- **F** isosceles
- **A** equilateral
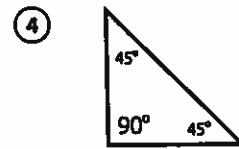
④ 45° 90° 45°
- **Z** scalene
- **R** isosceles
- **K** equilateral
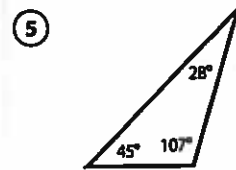
⑤ 28° 45° 107°
- **T** scalene
- **S** isosceles
- **A** equilateral
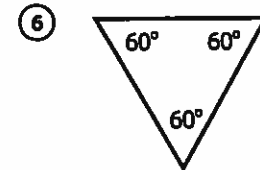
⑥ 60° 60° 60°
- **C** scalene
- **J** isosceles
- **W** equilateral

⑦ I have angle measures 34°, 56°, and 90°. What kind of triangle am I?

A scalene   **L** isosceles   **P** equilateral

⑧ Each of my sides measures 54 yards, what kind of triangle am I?

T scalene   **P** isosceles   **F** equilateral
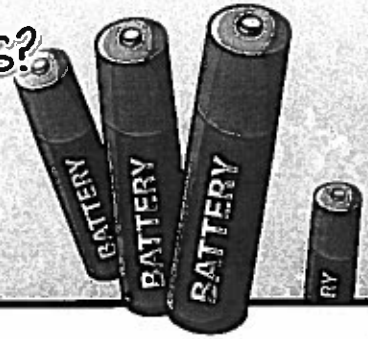
⑨ I have two sides that measure 14 mm and a third that measures 15 mm. What kind of triangle am I?

T scalene   **C** isosceles   **S** equilateral
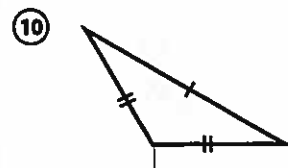
⑩
- **K** scalene
- **G** isosceles
- **L** equilateral
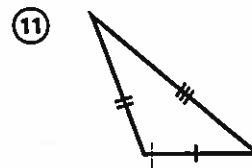
⑪
- **E** scalene
- **A** isosceles
- **I** equilateral

5	2	11	3		6	11	4	11		8	4	11	11		1	8		9	2	7	4	10	11

Skill: Identifying types of triangles as scalene, isosceles, or equilateral

CLASS CROWN™

What happened when Jim didn't like his mustache at first?

(1) A(n) _____ triangle has an angle greater than 90°.
- **R** acute
- **I** obtuse
- **J** right
- **P** equilateral

(2) An acute triangle has _____ angle(s) less than 90°.
- **M** no
- **E** two
- **V** all
- **B** one

(3) A(n) _____ triangle has a 90° angle.
- **P** acute
- **V** obtuse
- **U** right
- **D** equilateral

(4) If a triangle has one angle measuring 112°, it is a(n) _____ triangle.
- **E** acute
- **N** obtuse
- **S** right
- **Y** equilateral

(5) An equilateral triangle is a(n) _____ triangle.
- **R** acute
- **O** obtuse
- **Z** right
- **E** equilateral

(6) A right triangle _____ also be an obtuse triangle.
- **B** can
- **K** can sometimes
- **W** cannot

(7) An obtuse triangle will contain _____ acute angle(s).
- **G** no
- **Q** exactly one
- **L** exactly two

(8) Triangle ABC is _____ .
- **L** acute
- **O** obtuse
- **R** right
- **T** equilateral

(Triangle ABC: angle B = 36°, angle A = 103°, angle C = 41°)

(9) Triangle EFG is _____ .
- **S** acute
- **H** obtuse
- **T** right
- **A** equilateral

(Triangle EFG: angle F = 55°, right angle at E, angle G = 35°)

(10) A triangle has one angle that measures 16° and another that measures 74°. What kind of triangle is it?
- **E** acute
- **W** obtuse
- **N** right
- **J** equilateral

(11) A triangle that has two angles that measure 23° is what?
- **P** acute
- **A** obtuse
- **S** right
- **T** equilateral

(12) If a triangle has one angle that measures 90°, what kind of triangle is it?
- **F** acute
- **O** obtuse
- **G** right
- **Y** equilateral

(13) A triangle that has two angles that measure 72° is what?
- **Y** acute
- **O** obtuse
- **G** right
- **F** equilateral

(14) This triangle is _____ .
- **E** acute
- **S** obtuse
- **R** right

(Triangle with angles 60°, 60°, 60°)

(15) This triangle is _____ .
- **A** acute
- **H** obtuse
- **V** right

(Triangle with angles 93°, 40°)

(16) This triangle is _____ .
- **T** acute
- **U** obtuse
- **M** right

(Triangle with angles 20°, 70°)

Answer rectangles (bottom):
| | | | | | | | | | | | | | | | | | | | |
|14|2|14|4|9|3|11|7|7|13|1|9|12|5|14|6|8|10|15|1|16|