
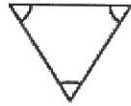

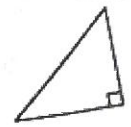


### Chapter 4 Congruent Triangles

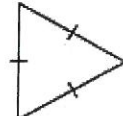
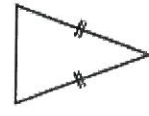
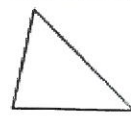
#### Lesson 4.1 Classifying Triangles - Notes and Practice

**KeyConcept Classifications of Triangles by Angles**

<b>acute triangle</b>  3 acute angles	<b>equiangular triangle</b>  3 congruent acute angles	<b>obtuse triangle</b>  1 obtuse angle	<b>right triangle</b>  1 right angle
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An equiangular triangle is a special kind of acute triangle.

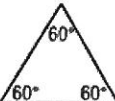

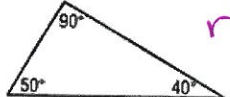
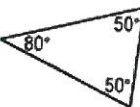
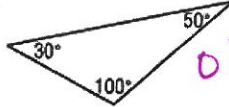
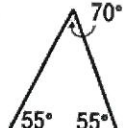
**KeyConcept Classifications of Triangles by Sides**

<b>equilateral triangle</b>  3 congruent sides	<b>isosceles triangle</b>  at least 2 congruent sides	<b>scalene triangle</b>  no congruent sides
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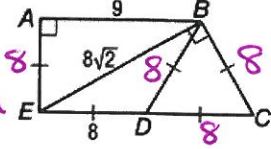
An equilateral triangle is a special kind of isosceles triangle.

**Practice**

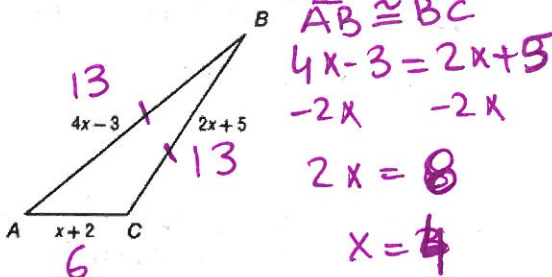
Classify each triangle as *acute*, *equiangular*, *obtuse*, or *right*.

-  *equiangular*
-  *obtuse*
-  *right*
-  *acute*
-  *obtuse*
-  *acute*

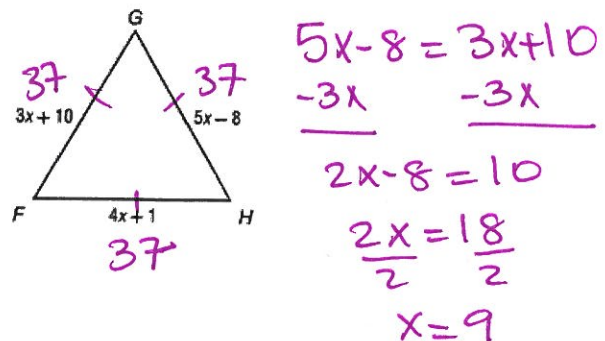
Classify each triangle as *equilateral*, *isosceles*, or *scalene*.

- $\triangle ABE$  *scalene*
  - $\triangle EDB$  *isosceles*
  - $\triangle EBC$  *scalene*
  - $\triangle DBC$  *equilateral*
- 

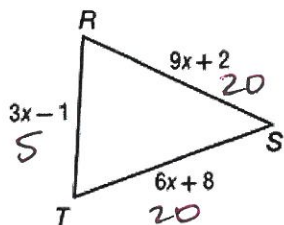
11. **ALGEBRA** Find  $x$  and the length of each side if  $\triangle ABC$  is an isosceles triangle with  $\overline{AB} \cong \overline{BC}$ .



12. **ALGEBRA** Find  $x$  and the length of each side if  $\triangle FGH$  is an equilateral triangle.



13. **ALGEBRA** Find  $x$  and the length of each side if  $\triangle RST$  is an isosceles triangle with  $\overline{RS} \cong \overline{TS}$ .



$$m\angle R \cong m\angle S$$

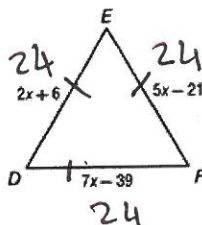
$$9x+2 = 6x+8$$

$$\begin{array}{r} 9x+2 \\ -6x \quad \quad -6x \\ \hline 3x+2 = 8 \end{array}$$

$$\frac{3x}{3} = \frac{6}{3}$$

$$x = 2$$

14. **ALGEBRA** Find  $x$  and the length of each side if  $\triangle DEF$  is an equilateral triangle.



$$5x-21 = 2x+6$$

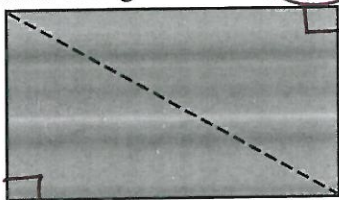
$$3x = 27$$

$$x = 9$$

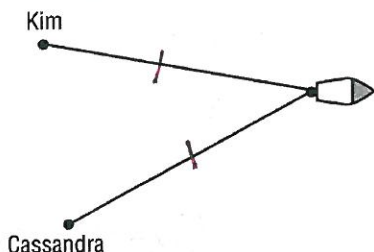
## Word Problems

1. **MUSEUMS** Paul is standing in front of a museum exhibition. When he turns his head  $60^\circ$  to the left, he can see a statue by Donatello. When he turns his head  $60^\circ$  to the right, he can see a statue by Della Robbia. The two statues and Paul form the vertices of a triangle. Classify this triangle as acute, right, or obtuse.

2. **PAPER** Marsha cuts a rectangular piece of paper in half along a diagonal. The result is two triangles. Classify these triangles as acute, right, or obtuse.

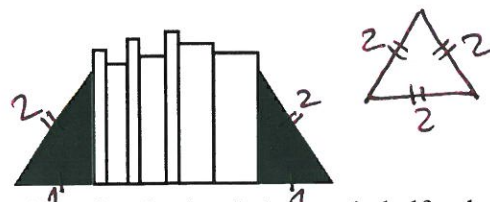


3. **WATERSKIING** Kim and Cassandra are waterskiing. They are holding on to ropes that are the same length and tied to the same point on the back of a speed boat. The boat is going full speed ahead and the ropes are fully taut.



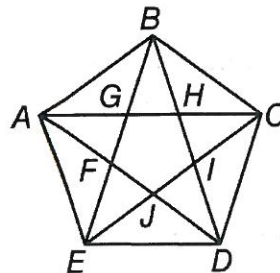
Kim, Cassandra, and the point where the ropes are tied on the boat form the vertices of a triangle. The distance between Kim and Cassandra is never equal to the length of the ropes. Classify the triangle as equilateral, isosceles, or scalene.

4. **BOOKENDS** Two bookends are shaped like right triangles.



The bottom side of each triangle is exactly half as long as the slanted side of the triangle. If all the books between the bookends are removed and they are pushed together, they will form a single triangle. Classify the triangle that can be formed as equilateral, isosceles, or scalene.

5. **DESIGNS** Suzanne saw this pattern on a pentagonal floor tile. She noticed many different kinds of triangles were created by the lines on the tile.



- a. Identify five triangles that appear to be acute isosceles triangles.

$\triangle ACD, \triangle BED, \triangle ACE$   
 $\triangle ADB, \triangle BCE$

- b. Identify five triangles that appear to be obtuse isosceles triangles.

$\triangle AEB, \triangle ABC, \triangle BCD, \triangle CDE$   
 $\triangle ADE$

**ALL PARTS NEED TO BE COMPLETED! SHOW WORK! NO WORK = 0 GRADE!!! KEEP NOTES IN YOUR BINDER. IF YOU LOOSE IT = 0 GRADE!!!**