

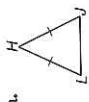
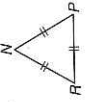
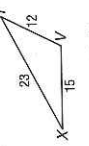
4-1 Study Guide and Intervention (continued)

Classifying Triangles

Classify Triangles by Sides You can classify a triangle by the measures of its sides. Equal numbers of hash marks indicate congruent sides.

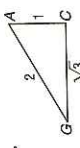

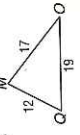
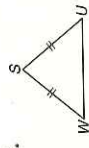
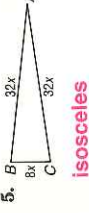
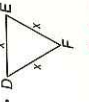
- If all three sides of a triangle are congruent, then the triangle is an equilateral triangle.
- If at least two sides of a triangle are congruent, then the triangle is an isosceles triangle.
- If no two sides of a triangle are congruent, then the triangle is a scalene triangle.

Example Classify each triangle.

- a.  Two sides are congruent. The triangle is an isosceles triangle.
- b.  All three sides are congruent. The triangle is an equilateral triangle.
- c.  The triangle has no pair of congruent sides. It is a scalene triangle.

Exercises

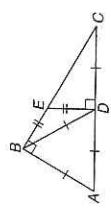
Classify each triangle as equilateral, isosceles, or scalene.

1.  scalene
2.  equilateral
3.  scalene
4.  isosceles
5.  isosceles
6.  equilateral

7. Find the measure of each side of equilateral $\triangle BST$ with $RS = 2x + 2$, $ST = 3x$, and $TR = 5x - 4$. **6**
8. Find the measure of each side of isosceles $\triangle ABC$ with $AB = BC$ if $AB = 4y$, $BC = 3y + 2$, and $AC = 3y$. **$AB = BC = 8$, $AC = 6$**

Identify the indicated type of triangles if $AB \cong AD \cong BD$, $BE \cong ED$, $AB \perp BC$, and $ED \perp DC$.

4. right $\triangle ABC$, $\triangle CDE$
5. obtuse $\triangle BED$, $\triangle BDC$
6. scalene $\triangle ABC$, $\triangle CDE$
7. isosceles $\triangle ABD$, $\triangle BED$, $\triangle BDC$



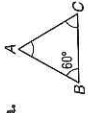
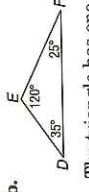

4-1 Study Guide and Intervention

Classifying Triangles

Classify Triangles by Angles One way to classify a triangle is by the measures of its angles.




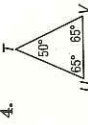
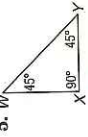
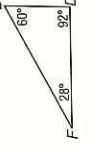
- If one of the angles of a triangle is an obtuse angle, then the triangle is an obtuse triangle.
- If one of the angles of a triangle is a right angle, then the triangle is a right triangle.
- If all three of the angles of a triangle are acute angles, then the triangle is an acute triangle.
- If all three angles of an acute triangle are congruent, then the triangle is an equiangular triangle.

Example Classify each triangle.

- a.  All three angles are congruent, so all three angles have measure 60° . The triangle is an equiangular triangle.
- b.  The triangle has one angle that is obtuse. It is an obtuse triangle.
- c.  The triangle has one right angle. It is a right triangle.

Exercises

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

1.  right
2.  obtuse
3.  equiangular
4.  acute
5.  right
6.  obtuse