

**9.3**

**Notetaking with Vocabulary**  
For use after Lesson 9.3

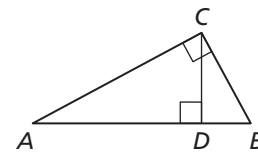
In your own words, write the meaning of each vocabulary term.

geometric mean

**Theorems**

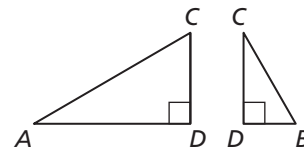
**Theorem 9.6 Right Triangle Similarity Theorem**

If the altitude is drawn to the hypotenuse of a right triangle, then the two triangles formed are similar to the original triangle and to each other.



$\triangle CBD \sim \triangle ABC$ ,  $\triangle ACD \sim \triangle ABC$ , and  $\triangle CBD \sim \triangle ACD$ .

**Notes:**



**Core Concepts**

**Geometric Mean**

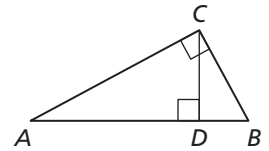
The **geometric mean** of two positive numbers  $a$  and  $b$  is the positive number  $x$  that satisfies  $\frac{a}{x} = \frac{x}{b}$ . So,  $x^2 = ab$  and  $x = \sqrt{ab}$ .

**Notes:**

**9.3** Notetaking with Vocabulary (continued)**Theorems****Theorem 9.7 Geometric Mean (Altitude) Theorem**

In a right triangle, the altitude from the right angle to the hypotenuse divides the hypotenuse into two segments.

The length of the altitude is the geometric mean of the lengths of the two segments of the hypotenuse.

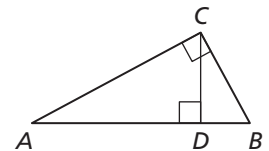


$$CD^2 = AD \cdot BD$$

**Notes:****Theorem 9.8 Geometric Mean (Leg) Theorem**

In a right triangle, the altitude from the right angle to the hypotenuse divides the hypotenuse into two segments.

The length of each leg of the right triangle is the geometric mean of the lengths of the hypotenuse and the segment of the hypotenuse that is adjacent to the leg.



$$CB^2 = DB \cdot AB$$

$$AC^2 = AD \cdot AB$$

**Notes:**