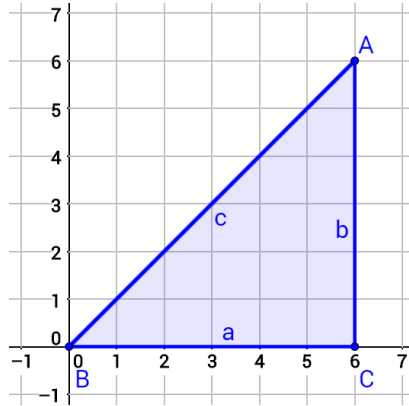


# Special Right Triangles Investigation

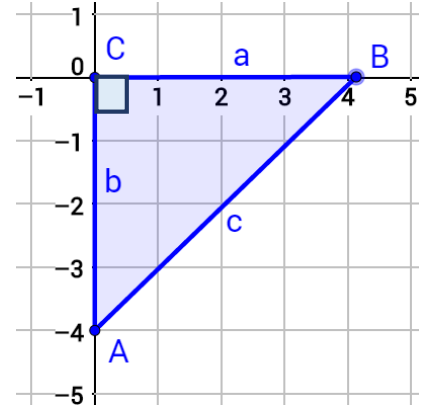
Name \_\_\_\_\_ Period \_\_\_\_\_

Find the measures of the indicated sides and angles. Simplify any radicals.

- BC = \_\_\_\_\_  
 AC = \_\_\_\_\_  
 $m\angle C =$  \_\_\_\_\_  
 $m\angle A =$  \_\_\_\_\_  
 $m\angle B =$  \_\_\_\_\_  
 AB = \_\_\_\_\_



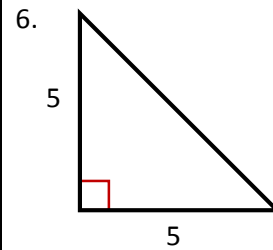
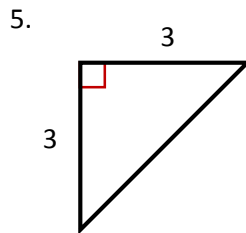
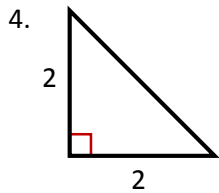
- a = \_\_\_\_\_  
 b = \_\_\_\_\_  
 $m\angle C =$  \_\_\_\_\_  
 $m\angle A =$  \_\_\_\_\_  
 $m\angle B =$  \_\_\_\_\_  
 c = \_\_\_\_\_



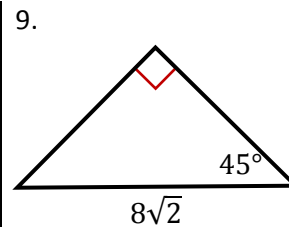
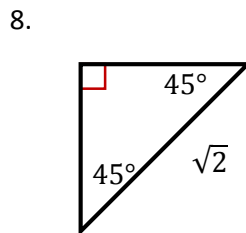
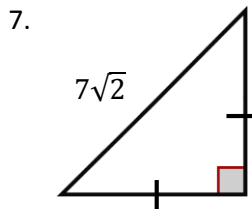
**Hint:** Use The Pythagorean Theorem

- Explain why you can't count the squares of a diagonal line to find the distance between points A and B. \_\_\_\_\_

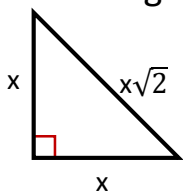
Find the hypotenuse of each of the isosceles right triangles.



An isosceles right triangle is also known as a 45-45-90 triangle. Find the lengths of the legs of the 45-45-90 triangles.



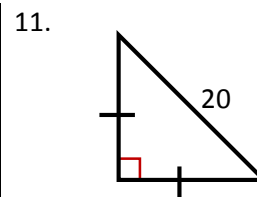
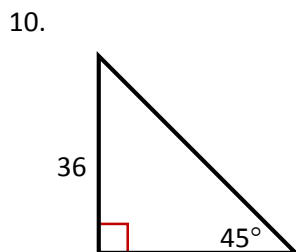
**Isosceles Right (45-45-90) Triangle Shortcut**



hypotenuse = leg  $\times$  \_\_\_\_\_

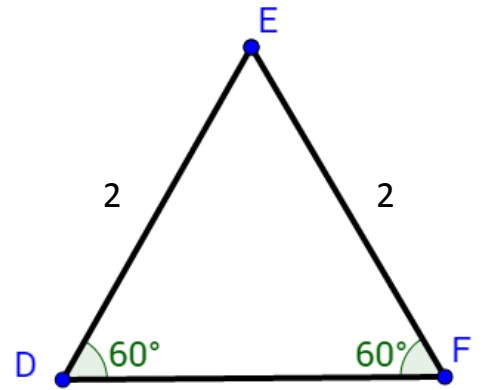
leg = hypotenuse  $\div$  \_\_\_\_\_

Use the shortcut to find the missing side of the triangles below.

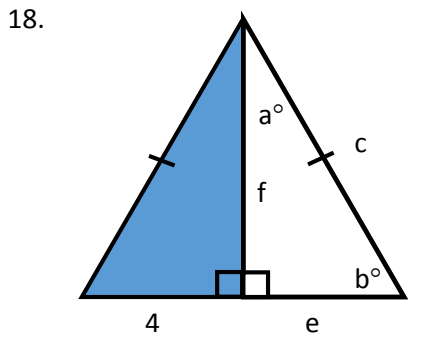


### 30-60-90 Right Triangle

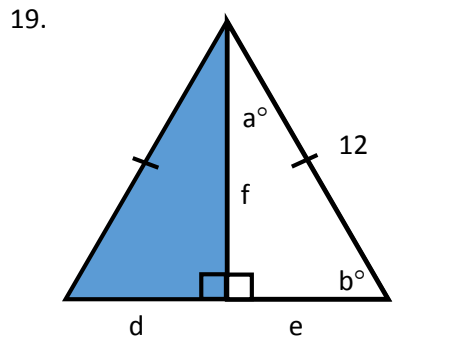
12.  $\triangle DEF$  is an \_\_\_\_\_ triangle.
13. Draw an altitude from point E to  $\overline{DF}$ . Be sure to mark your right angle.
14. Label the place where your altitude meets  $\overline{DF}$  point C.
15. Find the  $m\angle CEF$ . \_\_\_\_\_
16. Find the length of  $\overline{CF}$ . \_\_\_\_\_
17. Use the Pythagorean Theorem to find EC. \_\_\_\_\_



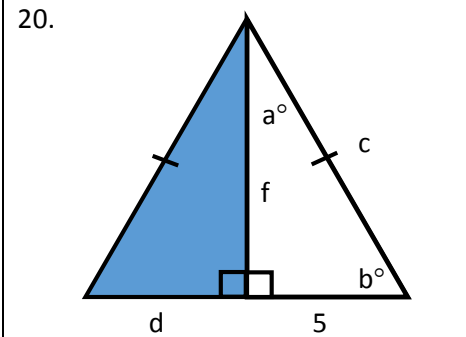
### Find the missing sides and angles.



$a = \underline{\hspace{2cm}}$     $b = \underline{\hspace{2cm}}$   
 $e = \underline{\hspace{2cm}}$     $c = \underline{\hspace{2cm}}$   
 $f = \underline{\hspace{2cm}}$



$a = \underline{\hspace{2cm}}$     $b = \underline{\hspace{2cm}}$   
 $d = \underline{\hspace{2cm}}$     $e = \underline{\hspace{2cm}}$   
 $f = \underline{\hspace{2cm}}$



$a = \underline{\hspace{2cm}}$     $b = \underline{\hspace{2cm}}$   
 $d = \underline{\hspace{2cm}}$     $c = \underline{\hspace{2cm}}$   
 $f = \underline{\hspace{2cm}}$

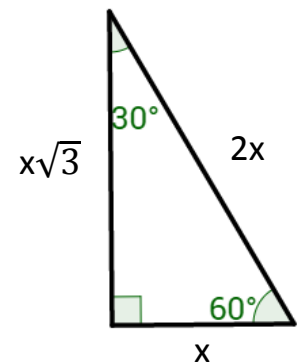
A 30-60-90 right triangle has two legs and a hypotenuse. The leg opposite the  $30^\circ$  angle is called the **short leg**. The leg opposite the  $60^\circ$  angle is called the **long leg**.

Hypotenuse = short leg  $\times$  \_\_\_\_\_

Long leg = short leg  $\times$  \_\_\_\_\_

Short leg = hypotenuse  $\div$  \_\_\_\_\_

Short leg = long leg  $\div$  \_\_\_\_\_



### Find the missing sides.

