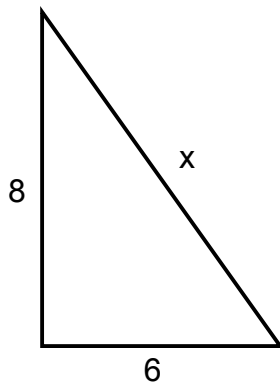
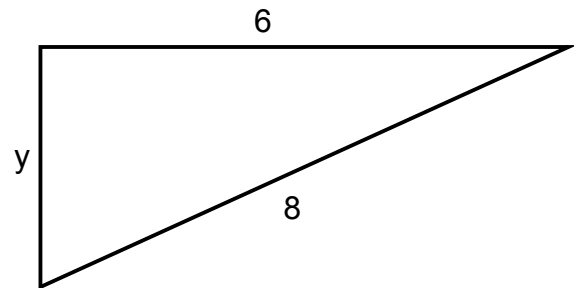


Solve for the variable in each of the following. The triangles are not drawn to scale.

1.  $a^2 + b^2 = c^2$   
 $6^2 + 8^2 = x^2$   
 $36 + 64 = x^2$   
 $100 = x^2$   
 $x = \sqrt{100} = 10$

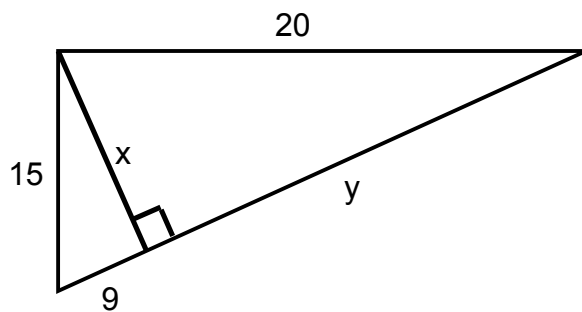


2.  $a^2 + b^2 = c^2$   
 $y^2 + 6^2 = 8^2$   
 $y^2 + 36 = 64$   
 $y^2 = 28$   
 $y = \sqrt{28} = 2\sqrt{7} \approx 5.29$



3. You need to find  $x$  first

$a^2 + b^2 = c^2$   
 $9^2 + x^2 = 15^2$   
 $81 + x^2 = 225$   
 $x^2 = 144$   
 $x = \sqrt{144} = 12$   
 Then find  $y$   
 $a^2 + b^2 = c^2$   
 $x^2 + y^2 = 20^2$   
 $12^2 + y^2 = 20^2$   
 $144 + y^2 = 400$   
 $y^2 = 256$   
 $y = \sqrt{256} = 16$



4. You need to find  $x$  first

$$a^2 + b^2 = c^2$$

$$(3\sqrt{2})^2 + (3\sqrt{2})^2 = x^2$$

$$9(2) + 9(2) = x^2$$

$$18 + 18 = x^2$$

$$36 = x^2$$

$$x = \sqrt{36} = 6$$

Then find  $y$

$$a^2 + b^2 = c^2$$

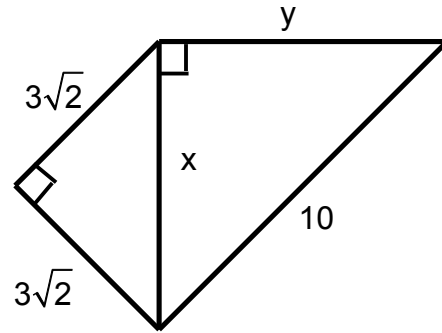
$$x^2 + y^2 = 10^2$$

$$6^2 + y^2 = 10^2$$

$$36 + y^2 = 100$$

$$y^2 = 64$$

$$y = \sqrt{64} = 8$$



5. You need to find  $x$  first

$$a^2 + b^2 = c^2$$

$$x^2 + 4^2 = (4\sqrt{2})^2$$

$$x^2 + 16 = 16(2)$$

$$x^2 + 16 = 32$$

$$x^2 = 16$$

$$x = \sqrt{16} = 4$$

Then find  $y$

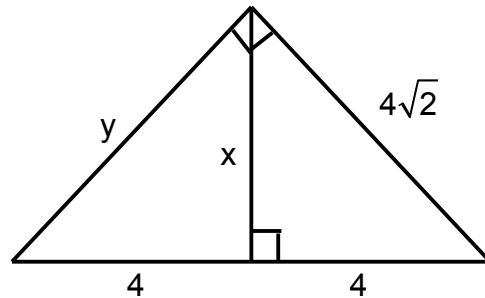
$$a^2 + b^2 = c^2$$

$$4^2 + 4^2 = y^2$$

$$16 + 16 = y^2$$

$$y^2 = 32$$

$$y = \sqrt{32} = 4\sqrt{2} \approx 5.66$$



6. You need to find  $x$  first

$$a^2 + b^2 = c^2$$

$$x^2 + 8^2 = 10^2$$

$$x^2 + 64 = 100$$

$$x^2 = 36$$

$$x = \sqrt{36} = 6$$

Then find  $y$

$$a^2 + b^2 = c^2$$

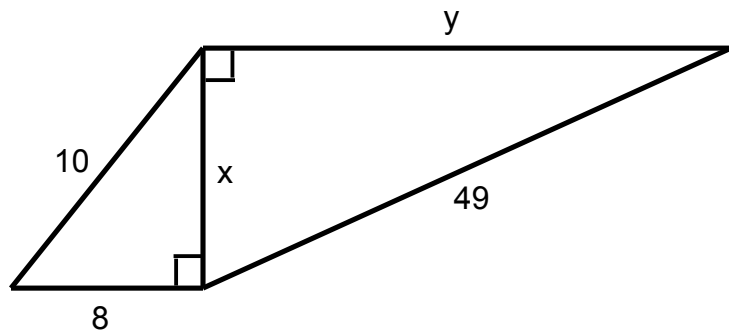
$$x^2 + y^2 = 49^2$$

$$6^2 + y^2 = 49^2$$

$$36 + y^2 = 2401$$

$$y^2 = 2365$$

$$y = \sqrt{2365} \approx 48.63$$



Use the Pythagorean theorem to determine if each triangle is acute, right, or obtuse. The triangles are not drawn to scale.

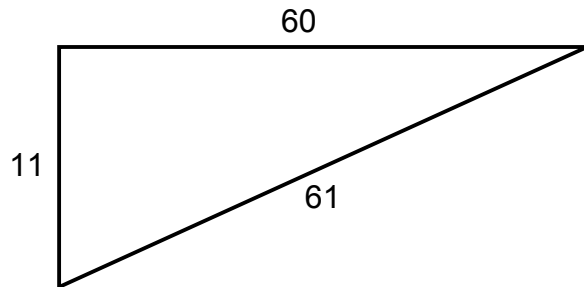
7.  $a^2 + b^2 \_ c^2$

$$11^2 + 60^2 \_ 61^2$$

$$121 + 3600 \_ 3721$$

$$3721 = 3721$$

Since  $a^2 + b^2 = c^2$ ,  
it is a right triangle.



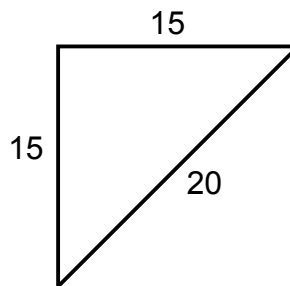
8.  $a^2 + b^2 \_ c^2$

$$15^2 + 15^2 \_ 20^2$$

$$225 + 225 \_ 400$$

$$450 > 400$$

Since  $a^2 + b^2 > c^2$ ,  
it is an acute triangle.



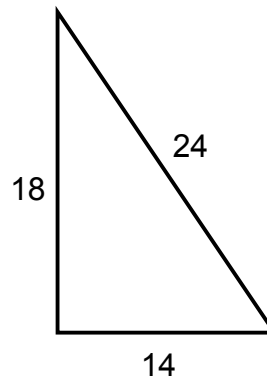
9.  $a^2 + b^2 \_ c^2$

$$14^2 + 18^2 \_ 24^2$$

$$196 + 324 \_ 576$$

$$520 < 576$$

Since  $a^2 + b^2 < c^2$ ,  
it is an obtuse triangle.



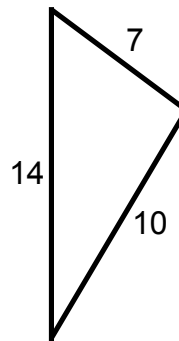
10.  $a^2 + b^2 \_ c^2$

$$7^2 + 10^2 \_ 14^2$$

$$49 + 100 \_ 196$$

$$149 < 196$$

Since  $a^2 + b^2 < c^2$ ,  
it is an obtuse triangle.



11.  $a^2 + b^2$  \_\_\_  $c^2$

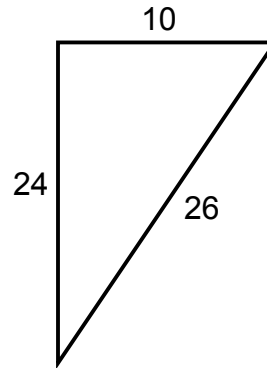
$$10^2 + 24^2$$
 \_\_\_  $26^2$

$$100 + 576$$
 \_\_\_  $676$

$$676 = 676$$

Since  $a^2 + b^2 = c^2$ ,

it is a right triangle.



12.  $a^2 + b^2$  \_\_\_  $c^2$

$$(\sqrt{20})^2 + (\sqrt{35})^2$$
 \_\_\_  $7^2$

$$20 + 35$$
 \_\_\_  $49$

$$55 > 49$$

Since  $a^2 + b^2 > c^2$ ,

it is an acute triangle.

