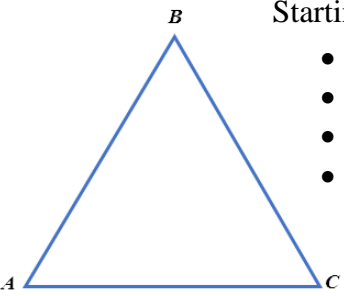


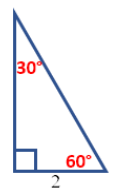
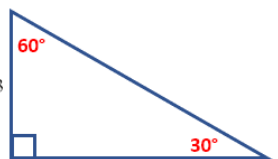
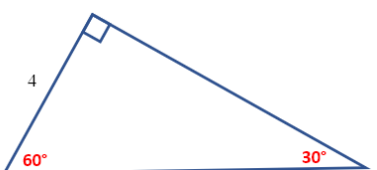
# $30^\circ - 60^\circ - 90^\circ$ : A Special Right Triangle



Starting with an **equilateral** triangle...

- Draw the altitude of the triangle from  $B$  to  $\overline{AC}$  and label the intersection  $D$ .
- Find the measure of all angles write them on the figure.
- Let  $BC = 2$ , and find the length of  $AB$ ,  $AD$ , and  $DC$  and label them on the figure.
- Use the Pythagorean Theorem to find  $BD$ .

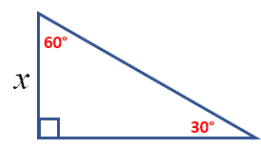
Find the missing side length on each triangle, using similarity to help.

<p>1) </p>	<p>2) </p>	<p>3) </p>
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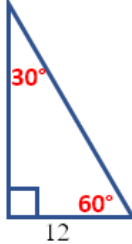
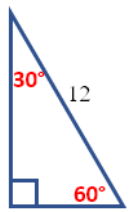
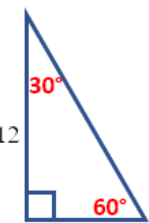
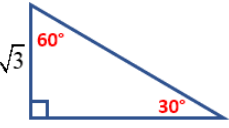
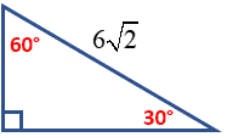
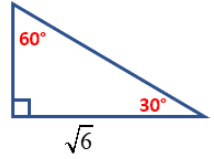
## Theorem

### Theorem 9.5 $30^\circ - 60^\circ - 90^\circ$ Triangle Theorem

In a  $30^\circ - 60^\circ - 90^\circ$  triangle, the hypotenuse is twice as long as the shorter leg, and the longer leg is  $\sqrt{3}$  times as long as the shorter leg.



Find the missing side length of each triangle.

<p>4) </p>	<p>5) </p>	<p>6) </p>
<p>7) </p>	<p>8) </p>	<p>9) </p>