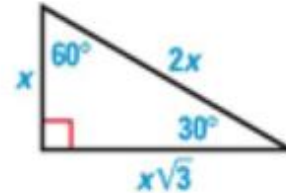# 7.4 Special Right Triangles

THEOREM 7.9 30°-60°-90° Triangle Theorem

In a 30°-60°-90° 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.

hypotenuse $= 2 \cdot$ shorter leg

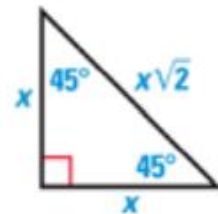longer leg $=$ shorter leg $\cdot \sqrt{3}$

THEOREM 7.8 45°-45°-90° Triangle Theorem

In a 45°-45°-90° triangle, the hypotenuse is $\sqrt{2}$ times as long as each leg.

hypotenuse $=$ leg $\cdot \sqrt{2}$

45-45-90 Triangle

Leg to Hypotenuse----->   Multiply by $\sqrt{2}$

Hypotenuse to Leg----->   Divide by $\sqrt{2}$

30-60-90 Triangle

Short Leg to Long Leg----->   Multiply by $\sqrt{3}$

Short Leg to Hypotenuse----->   Multiply by 2

Hypotenuse to Short Leg----->   Divide by 2

Long Leg to Short Leg----->   Divide by $\sqrt{3}$