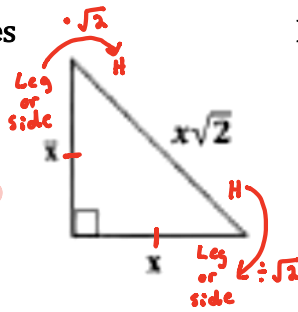


➤ SPECIAL RIGHT TRIANGLES:

45° – 45° – 90° Triangle Theorem



$$\text{Hypotenuse} = \text{Leg} \cdot \sqrt{2}$$

$$\text{Leg} = \frac{\text{Hypotenuse}}{\sqrt{2}}$$

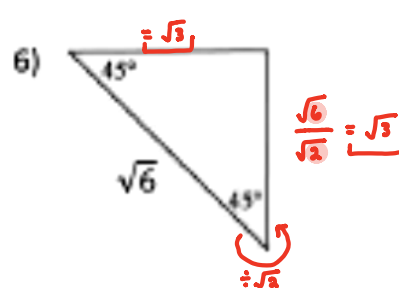
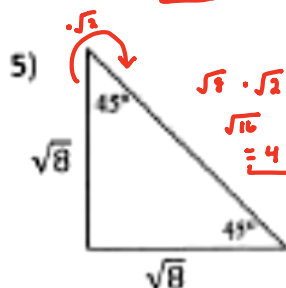
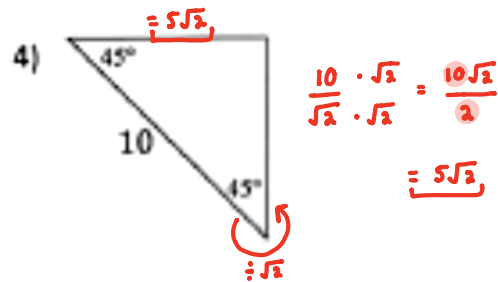
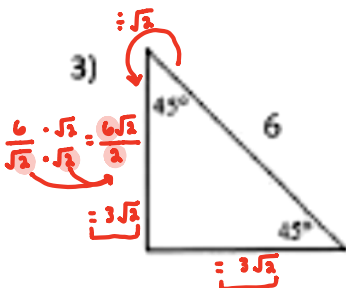
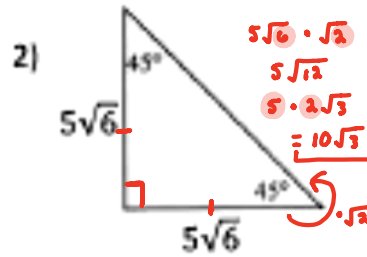
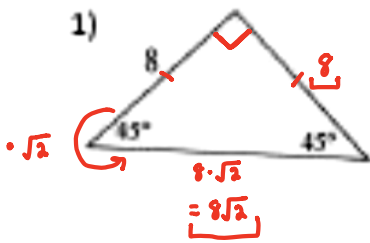
Fill in the table with the missing side lengths of the 45° – 45° – 90° triangle. Leave all answers in **simplified radical form**.

Leg (x)	5	3	6	1	$2\sqrt{6}$	$15\sqrt{3}$	$\sqrt{14}$	$8\sqrt{3}$
Leg (x)	5	$\frac{3\sqrt{3}}{\sqrt{3}} = 3$	$\frac{6\sqrt{3}}{\sqrt{3}} = 6$	$\frac{\sqrt{3}}{\sqrt{3}} = 1$	$2\sqrt{6}$	$\frac{15\sqrt{6}}{\sqrt{2}} = 15\sqrt{3}$	$\sqrt{14}$	$\frac{8\sqrt{6}}{\sqrt{2}} = 8\sqrt{3}$
Hypotenuse (x√2)	$5 \cdot \sqrt{2} = 5\sqrt{2}$	$3\sqrt{2}$	$6\sqrt{2}$	$1\sqrt{2}$	$\frac{2\sqrt{6} \cdot \sqrt{2}}{2 \cdot \sqrt{2}} = 2\sqrt{3}$	$15\sqrt{6}$	$\frac{\sqrt{14} \cdot \sqrt{2}}{\sqrt{2}} = \sqrt{14}$	$8\sqrt{6}$

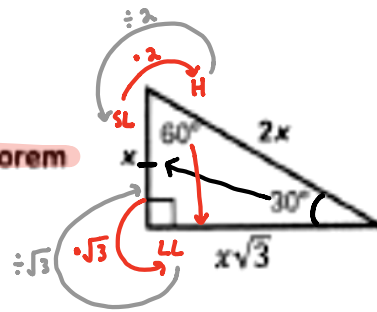
45° – 45° – 90° Rules:

When you are given the length of a LEG multiply by $\sqrt{2}$ to get the length of the HYPOTENUSE.
 When you are given the length of the HYPOTENUSE divide by $\sqrt{2}$ to get the length of the LEG.

- Find all the missing side lengths. Leave answers in **simplest radical form**.



30° - 60° - 90° Triangle Theorem



$Hypotenuse = Short\ Leg \cdot 2$
 $Long\ Leg = Short\ Leg \cdot \sqrt{3}$
 $Short\ Leg = \frac{Hypotenuse}{2}$
 $Short\ Leg = \frac{Long\ Leg}{\sqrt{3}}$

Fill in the table with the missing side lengths of the 30° - 60° - 90° triangle. Leave all answers in simplified radical form.

Short Leg (x)	6	$\frac{20}{2} = 10$	$\frac{4\sqrt{3}}{\sqrt{3}} = 4$	$2\sqrt{3}$	8	$\frac{18\sqrt{3}}{2} = 9\sqrt{3}$	$\frac{8\sqrt{6}}{2} = 4\sqrt{6}$	18
Long Leg (x√3)	$6 \cdot \sqrt{3} = 6\sqrt{3}$	$10 \cdot \sqrt{3} = 10\sqrt{3}$	$4\sqrt{3}$	$2\sqrt{3} \cdot \sqrt{3} = 2 \cdot 3 = 6$	$8 \cdot \sqrt{3} = 8\sqrt{3}$	$9\sqrt{3} \cdot \sqrt{3} = 9 \cdot 3 = 27$	$4\sqrt{6} \cdot \sqrt{3} = 4 \cdot 3\sqrt{2} = 12\sqrt{2}$	$18 \cdot \sqrt{3} = 18\sqrt{3}$
Hypotenuse (2x)	$6 \cdot 2 = 12$	20	$4 \cdot 2 = 8$	$2\sqrt{3} \cdot 2 = 4\sqrt{3}$	$8 \cdot 2 = 16$	$18\sqrt{3}$	$8\sqrt{6}$	$18 \cdot 2 = 36$

First find the SL

First find the SL

30° - 60° - 90° Rules:

When you are given the length of a SHORT LEG multiply by 2 to get the length of the HYPOTENUSE.

When you are given the length of the HYPOTENUSE divide by 2 to get the length of the SHORT LEG.

When you are given the length of a SHORT LEG multiply by $\sqrt{3}$ to get the length of the LONG LEG.

When you are given the length of the LONG LEG divide by $\sqrt{3}$ to get the length of the SHORT LEG.

- Find all the missing side lengths. Leave answers in **simplified radical form**.

