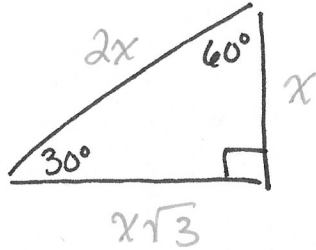
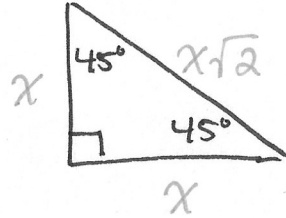


Special Right Triangles

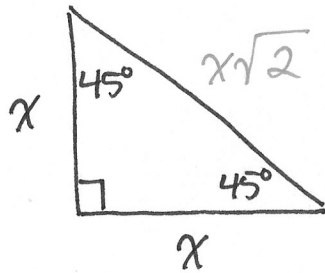
30°-60°-90°
 x $x\sqrt{3}$ $2x$



45°-45°-90°
 x x $x\sqrt{2}$



Proof of 45°-45°-90°

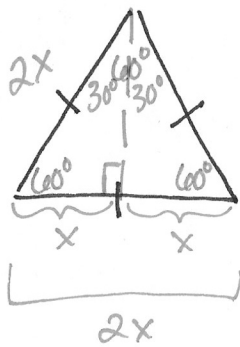


$$x^2 + x^2 = c^2$$

$$\sqrt{2x^2} = \sqrt{c^2}$$

$$x\sqrt{2} = c$$

Proof of 30°-60°-90°

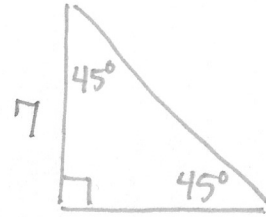


$$b^2 = (2x)^2 - x^2$$

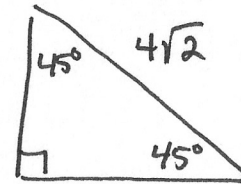
$$b^2 = 4x^2 - x^2$$

$$\sqrt{b^2} = \sqrt{3x^2}$$

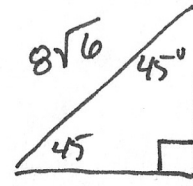
$$b = x\sqrt{3}$$



45°-45°-90°
 x x $x\sqrt{2}$
 7 7 $7\sqrt{2}$



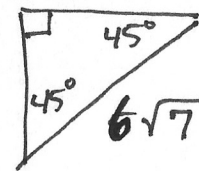
45°-45°-90°
 x x $x\sqrt{2}$
 4 4 $4\sqrt{2}$



45°-45°-90°
 x x $x\sqrt{2}$
 $8\sqrt{3}$ $8\sqrt{3}$ $8\sqrt{6}$

$$\frac{x\sqrt{2}}{\sqrt{2}} = \frac{8\sqrt{6}}{\sqrt{2}} \div 2$$

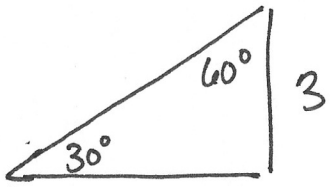
$$x = 8\sqrt{3}$$



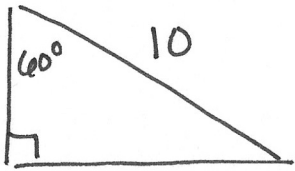
45°-45°-90°
 x x $x\sqrt{2}$
 $6\sqrt{7}$ $6\sqrt{7}$ $6\sqrt{14}$

$$\frac{x\sqrt{2}}{\sqrt{2}} = \frac{6\sqrt{14}}{\sqrt{2}}$$

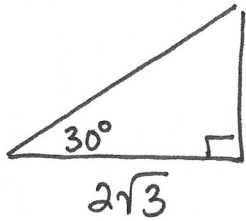
$$x = \frac{6\sqrt{14} \cdot \sqrt{2}}{\sqrt{2} \cdot \sqrt{2}} = \frac{6\sqrt{14}}{2}$$



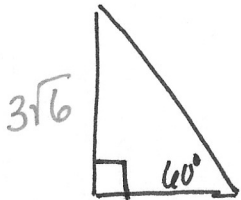
$$\begin{array}{ccc}
 30^\circ - 60^\circ - 90^\circ & & \\
 x & x\sqrt{3} & 2x \\
 3 & 3\sqrt{3} & 6
 \end{array}$$



$$\begin{array}{ccc}
 30^\circ - 60^\circ - 90^\circ & & \\
 x & x\sqrt{3} & 2x \\
 5 & 5\sqrt{3} & 10
 \end{array}$$



$$\begin{array}{ccc}
 30^\circ - 60^\circ - 90^\circ & & \\
 x & x\sqrt{3} & 2x \\
 2 & 2\sqrt{3} & 4
 \end{array}$$

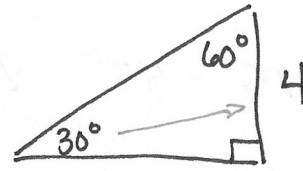


$$\begin{array}{ccc}
 30^\circ - 60^\circ - 90^\circ & & \\
 x & x\sqrt{3} & 2x \\
 3\sqrt{2} & 3\sqrt{6} & 6\sqrt{2}
 \end{array}$$

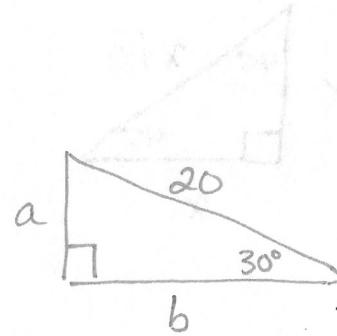
$$\frac{x\sqrt{3}}{\sqrt{3}} = \frac{3\sqrt{6}}{\sqrt{3}}$$

$$x = 3\sqrt{2}$$

ex 1:

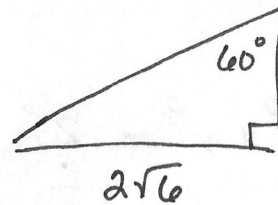


$$\begin{array}{ccc}
 30^\circ - 60^\circ - 90^\circ & & \\
 x & x\sqrt{3} & 2x \\
 4 & 4\sqrt{3} & 8
 \end{array}$$



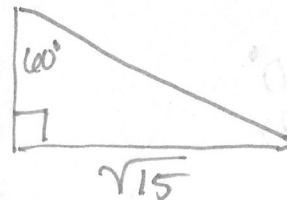
$$\begin{array}{ccc}
 30^\circ - 60^\circ - 90^\circ & & \\
 x & x\sqrt{3} & 2x \\
 10 & 10\sqrt{3} & 20
 \end{array}$$

$$2x = 20$$



$$\begin{array}{ccc}
 30^\circ - 60^\circ - 90^\circ & & \\
 x & x\sqrt{3} & 2x \\
 2\sqrt{2} & 2\sqrt{6} & 4\sqrt{2}
 \end{array}$$

$$\frac{x\sqrt{3}}{\sqrt{3}} = \frac{2\sqrt{6}}{\sqrt{3}} \div 3$$



$$\begin{array}{ccc}
 30^\circ - 60^\circ - 90^\circ & & \\
 x & x\sqrt{3} & 2x \\
 \sqrt{5} & \sqrt{15} & 2\sqrt{5}
 \end{array}$$

$$\frac{x\sqrt{3}}{\sqrt{3}} = \frac{\sqrt{15}}{\sqrt{3}} \quad x = \sqrt{5}$$