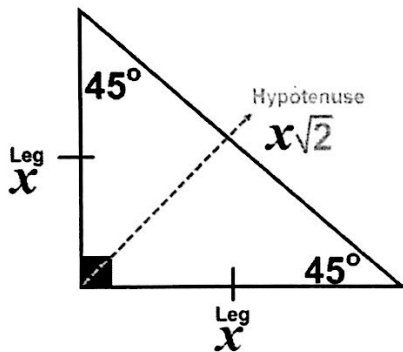


45° – 45° – 90° Triangle Theorem

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

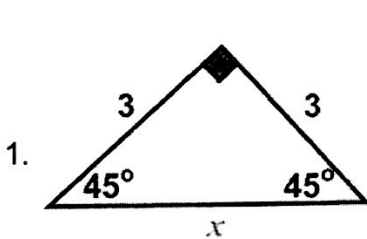


$$\sin 45^\circ = \frac{x}{x\sqrt{2}} = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$$

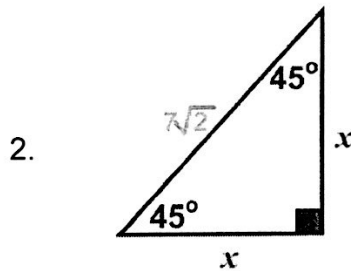
$$\cos 45^\circ = \frac{x}{x\sqrt{2}} = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$$

$$\tan 45^\circ = \frac{x}{x} = 1$$

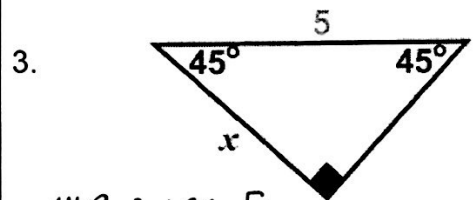
Find the value of x . If necessary, leave your answer in radical form.



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



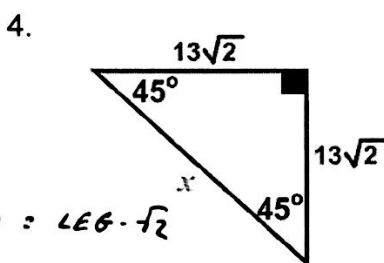
$$x = 7$$



$$\text{HYP} = \text{LEG} \cdot \sqrt{2}$$

$$5 = x\sqrt{2}$$

$$x = \frac{5}{\sqrt{2}} = \frac{5\sqrt{2}}{2}$$

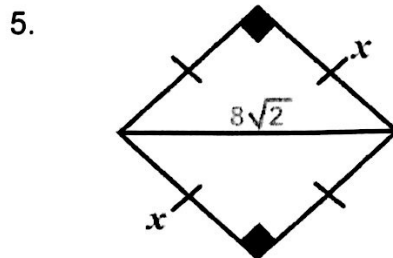


$$\text{HYP} = \text{LEG} \cdot \sqrt{2}$$

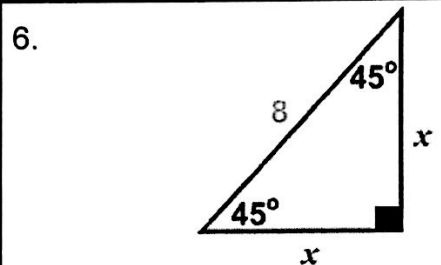
$$x = 13\sqrt{2} \cdot \sqrt{2}$$

$$x = 13 \cdot 2$$

$$x = 26$$



$$x = 8$$



$$\text{HYP} = \text{LEG} \cdot \sqrt{2}$$

$$8 = x\sqrt{2}$$

$$x = \frac{8}{\sqrt{2}} = \frac{8\sqrt{2}}{2} = 4\sqrt{2}$$

30° – 60° – 90° Triangle Theorem

Hypotenuse = 2 · Short Leg

Long Leg = Short Leg · $\sqrt{3}$

$$\sin 30^\circ = \frac{x}{2x} = \frac{1}{2}$$

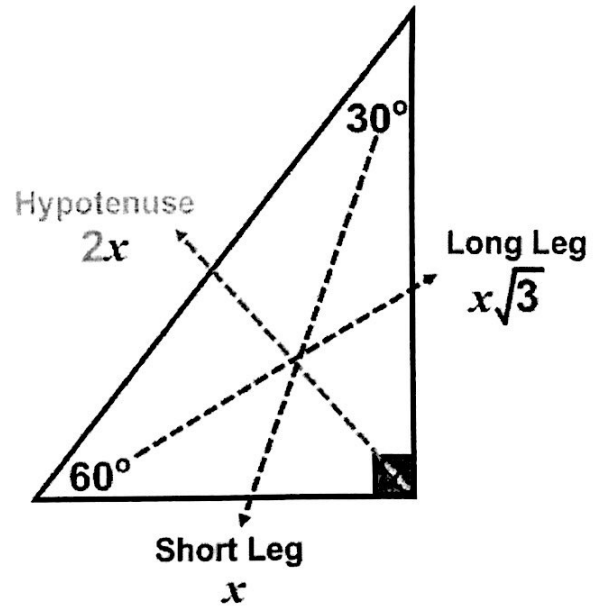
$$\sin 60^\circ = \frac{x\sqrt{3}}{2x} = \frac{\sqrt{3}}{2}$$

$$\cos 30^\circ = \frac{x\sqrt{3}}{2x} = \frac{\sqrt{3}}{2}$$

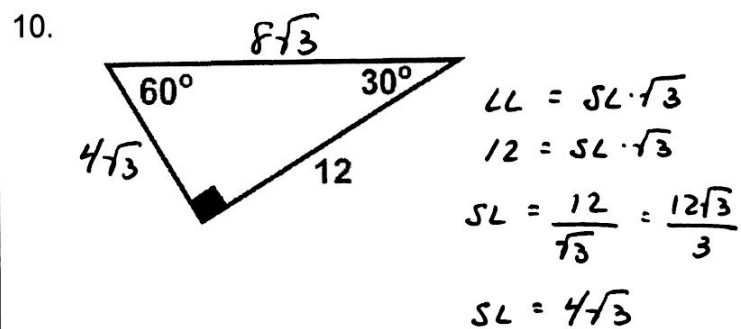
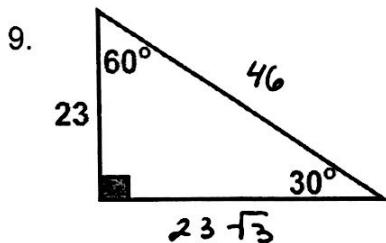
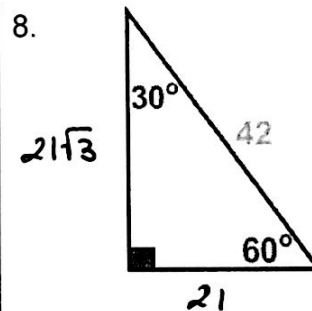
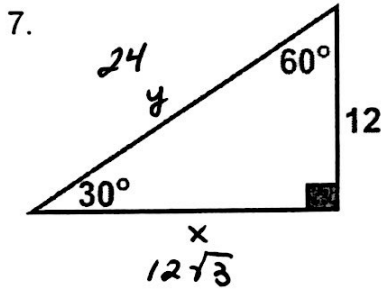
$$\cos 60^\circ = \frac{x}{2x} = \frac{1}{2}$$

$$\tan 30^\circ = \frac{x}{x\sqrt{3}} = \frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$$

$$\tan 60^\circ = \frac{x\sqrt{3}}{x} = \sqrt{3}$$

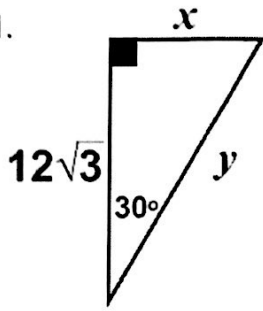


Find the missing lengths. If necessary, leave your answer in radical form.



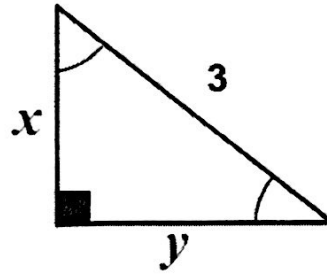
Find the missing lengths. If necessary, leave your answer in radical form.

11.



$x = 12$ $y = 24$

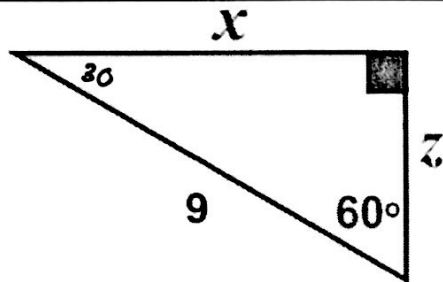
12.



$HYP = LEG \cdot \sqrt{2}$
 $3 = LEG \cdot \sqrt{2}$
 $L = \frac{3}{\sqrt{2}} = \frac{3\sqrt{2}}{2}$

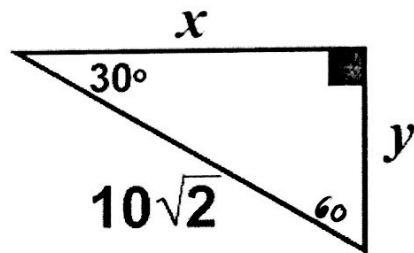
$x = \frac{3\sqrt{2}}{2}$ $y = \frac{3\sqrt{2}}{2}$

13.



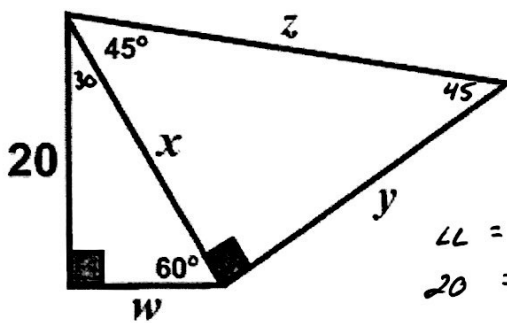
$x = \frac{9}{2}$ $z = \frac{9\sqrt{3}}{2}$

14.



$x = 5\sqrt{2}$ $y = 5\sqrt{6}$

15.

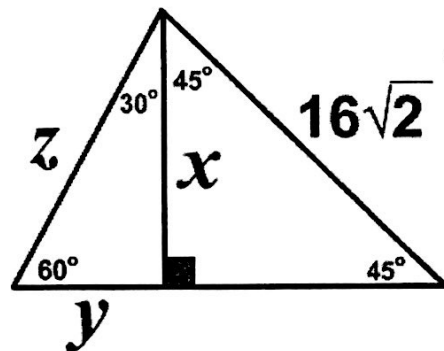


$LL = SL \cdot \sqrt{3}$
 $20 = SL \cdot \sqrt{3}$
 $\frac{20}{\sqrt{3}} = SL$
 $SL = \frac{20\sqrt{3}}{3}$

$w = \frac{20\sqrt{3}}{3}$ $x = \frac{40\sqrt{3}}{3}$

$y = \frac{40\sqrt{3}}{3}$ $z = \frac{40\sqrt{6}}{3}$

16.



$HYP = L \cdot \sqrt{2}$
 $16\sqrt{2} = L \cdot \sqrt{2}$
 $L = 16$

$LL = SL \cdot \sqrt{3}$
 $16 = x \cdot \sqrt{3}$
 $x = \frac{16}{\sqrt{3}} = \frac{16\sqrt{3}}{3}$

$x = 16$ $y = \frac{16\sqrt{3}}{3}$ $z = \frac{32\sqrt{3}}{3}$