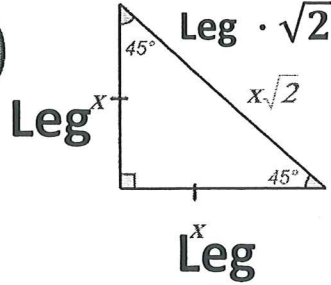


Special Right Triangles

Name Key Date _____
 Hour _____

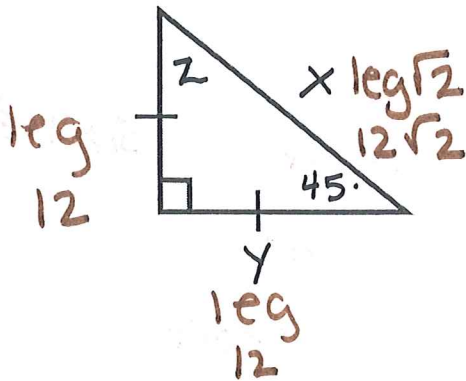
45-45-90



In a 45-45-90 Triangle, the hypotenuse is $\sqrt{2}$ times as long as each of the legs.

Example 1: Find the missing side length(s) in each 45-45-90 triangle. Rationalize the denominators.

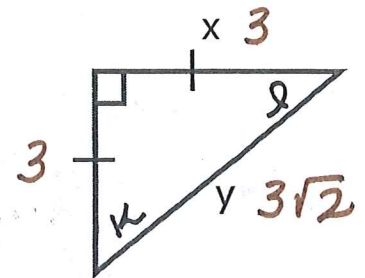
A. leg 12 cm



$x = 12\sqrt{2}$
 $y = 12$
 $z = 45^\circ$

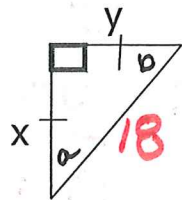
B. leg 3 in.

$x = 3\text{ in}$
 $y = 3\sqrt{2}\text{ in}$
 $k = 45^\circ$
 $l = 45^\circ$



C. hypotenuse 18

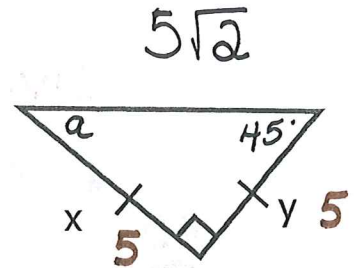
$\frac{18}{\sqrt{2}} = \frac{\text{leg}\sqrt{2}}{\sqrt{2}}$
 $\frac{18 \cdot \sqrt{2}}{\sqrt{2} \cdot \sqrt{2}} = \frac{18\sqrt{2}}{\sqrt{4}}$
 $\frac{18\sqrt{2}}{2} = 9\sqrt{2} = \text{leg}$



$x = 9\sqrt{2}$
 $y = 9\sqrt{2}$
 $a = 45^\circ, b = 45^\circ$

D. hypotenuse

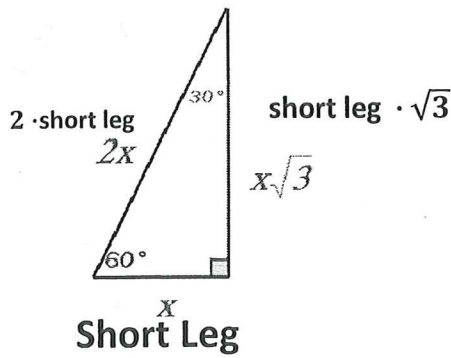
$\frac{5\sqrt{2}}{\sqrt{2}} = \frac{\text{leg}\sqrt{2}}{\sqrt{2}}$
 $\text{leg} = 5$



$x = 5$
 $y = 5$
 $a = 45^\circ$

Now do Warm Up DAY 18A Notes

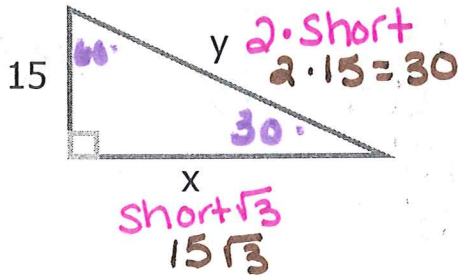
30-60-90



In a 30-60-90 triangle, the hypotenuse is 2 times the shorter leg and the longer leg is $\sqrt{3}$ times the shorter leg.

Example 2: Find the missing side length(s) in each 30-60-90 triangle. Rationalize the denominators.

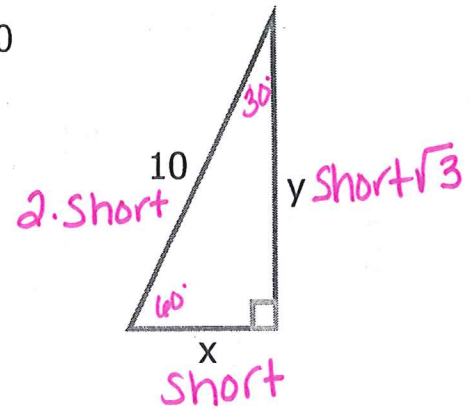
A. shorter leg 15



$$x = 15\sqrt{3}$$

$$y = 30$$

B. hypotenuse 10

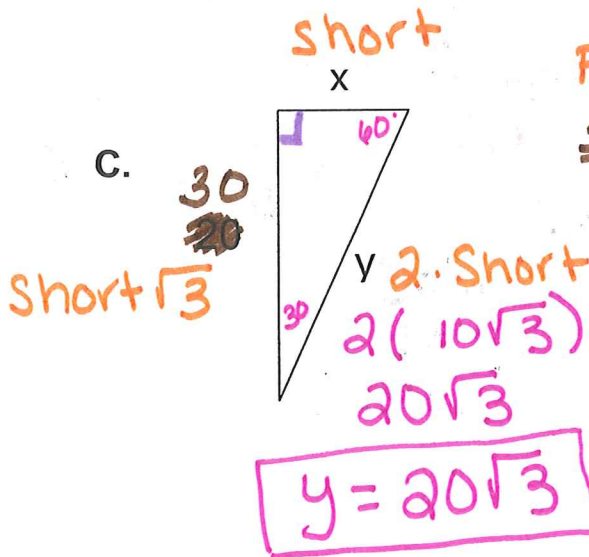


$$\frac{10}{2} = \frac{2 \cdot \text{Short}}{2}$$

$$5 = \text{short} = x$$

$$y = 5\sqrt{3} \quad x = 5$$

C.



Find short leg

$$\frac{30}{\sqrt{3}} = \frac{\text{short} \cdot \sqrt{3}}{\sqrt{3}}$$

$$\text{short} = \frac{30}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$$

$$= \frac{30\sqrt{3}}{\sqrt{9}}$$

$$= \frac{30\sqrt{3}}{3}$$

$$y = 20\sqrt{3}$$

Now do Warm-Up Day 19A Notes

$$x = 10\sqrt{3}$$

HW: Warmup Booklet day 15 - day 20 all that are not done yet