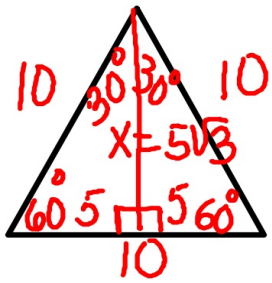
8-4 Special Right Triangles

Feb 2

std. 20.0

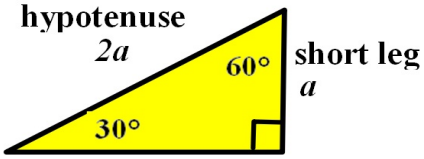
equilateral triangle



$x^2 + 5^2 = 10^2$

$\sqrt{x^2} = \sqrt{75}$ $\sqrt{25}\sqrt{3}$

$x = 5\sqrt{3}$

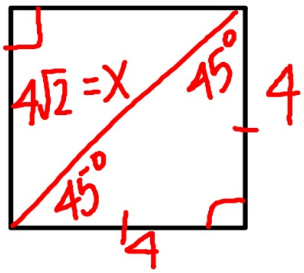


30°-60°-90° triangle

long leg is $\sqrt{3}$ times the short leg

hypotenuse is 2 times the short leg

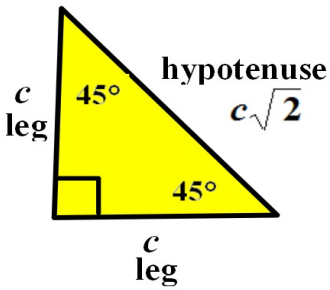
square



$x^2 = 4^2 + 4^2$

$\sqrt{x^2} = \sqrt{32}$ $\sqrt{16}\sqrt{2}$

$4\sqrt{2}$

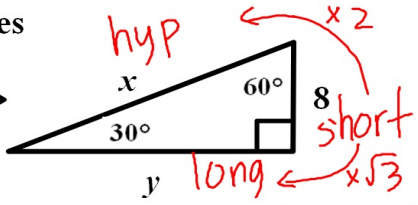


45°-45°-90° triangle
(isosceles right triangle)

hypotenuse is $\sqrt{2}$ times each leg

Examples

1

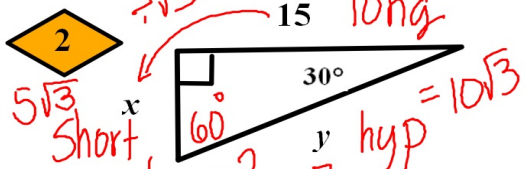


hyp, ×2, short, long, ×√3

$x = 2 \cdot 8 = 16$

$y = 8 \cdot \sqrt{3} = 8\sqrt{3}$

2



÷√3, long, $5\sqrt{3}$, short, $= 10\sqrt{3}$, hyp, ×2

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

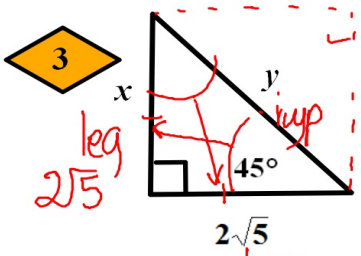
$\frac{15\sqrt{3}}{3}$

$5\sqrt{3} = x$

$y = 5\sqrt{3} \cdot 2$

$10\sqrt{3}$

3



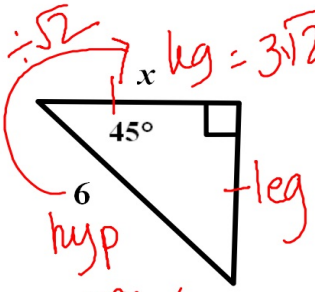
leg, $2\sqrt{5}$, hyp, $2\sqrt{5}$, leg

$y = 2\sqrt{5} \cdot \sqrt{2}$

leg · √2

$y = 2\sqrt{10}$

4



÷√2, leg = $3\sqrt{2}$, leg, hyp

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

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

$3\sqrt{2}$