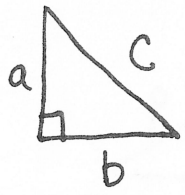
Review 7.1 - 7.4

Pythagorean Thm: $a^2 + b^2 = c^2$ (right triangles) c = hypotenuse



simplest radical form: $\sqrt{80}$

$\sqrt{80}$
/ \
16 5
/ \
4 4

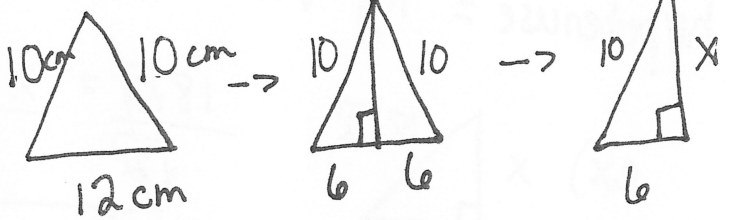
$4\sqrt{5}$

$\sqrt{72}$
/ \
2 36
/ \
6 6

$6\sqrt{2}$

Area of triangle

$A = \frac{b \cdot h}{2}$



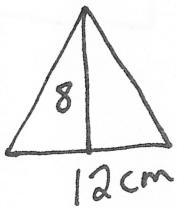
$6^2 + x^2 = 10^2$

$36 + x^2 = 100$

$-36 \quad -36$

$\sqrt{x^2} = \sqrt{64}$

$x = 8$



$A = \frac{8 \cdot 12}{2}$

$\boxed{A = 48\ cm^2}$

$a^2 + b^2 > c^2$ triangle is acute

$a^2 + b^2 < c^2$ triangle is obtuse

2 sides together > 3rd side

ex) 5, 8, 12 $5+8 > 12$

$13 > 12$ yes a △

3, 8, 20

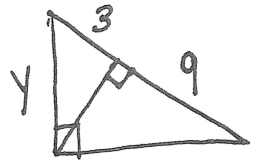
$3+8 > 20$

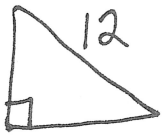
$11 \not> 20$ not a △

Similar triangles

Draw out Δ's
* long leg
* short leg

ex 1)



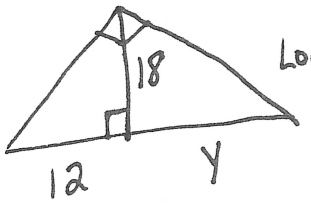


$$\frac{3}{y} = \frac{y}{12}$$

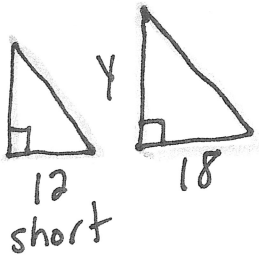
$$y^2 = 36$$

$$y = 6$$

ex 2)



Long



$$\frac{18}{y} = \frac{12}{18}$$

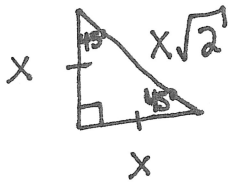
$$\frac{324}{12} = \frac{12y}{12}$$

$$y = 27$$

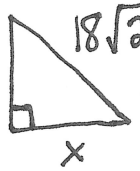
Special Right Triangles

45°-45°-90°

hypotenuse = leg · $\sqrt{2}$



ex)



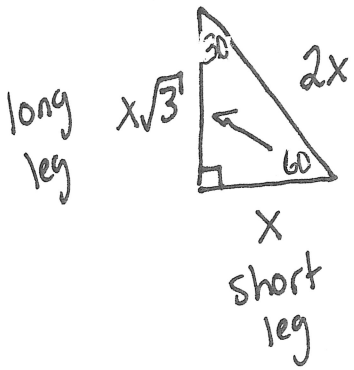
$$\frac{18\sqrt{2}}{\sqrt{2}} = \frac{x \cdot \sqrt{2}}{\sqrt{2}}$$

$$18 = x$$

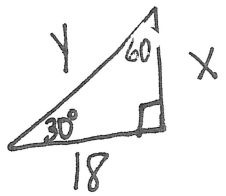
30°-60°-90°

hypotenuse = short · 2

long leg = short · $\sqrt{3}$



ex



$$\frac{18}{\sqrt{3}} = \frac{x\sqrt{3}}{\sqrt{3}}$$

$$\frac{\sqrt{3}}{\sqrt{3}} \cdot \frac{18}{\sqrt{3}} = x$$

$$\frac{18\sqrt{3}}{3} = x$$

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

$$y = 6\sqrt{3} \cdot 2$$

$$y = 12\sqrt{3}$$