Monday, March 16, 2020

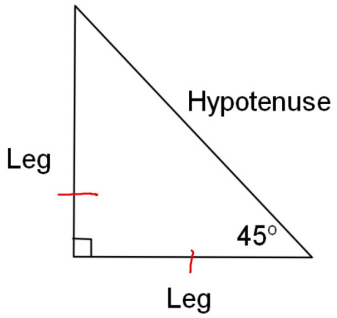
Special Right Triangles

There are two triangles that are called special right triangles:

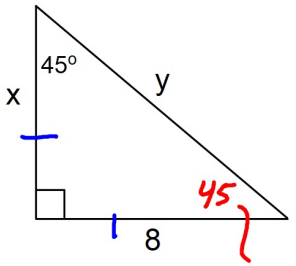
- $45^o - 45^0 - 90^o$ Triangle
  also called isosceles right triangle
- $30^o - 60^0 - 90^o$ Triangle

$45^o - 45^o - 90^o$ Triangle:

- Legs are congruent
- Hypotneuse = Leg $\cdot \sqrt{2}$
- Leg = $\frac{\text{Hypotenuse}}{\sqrt{2}}$



Find the EXACT value of x and y in this triangle. Give answers in simplified radical form.



x is a leg:

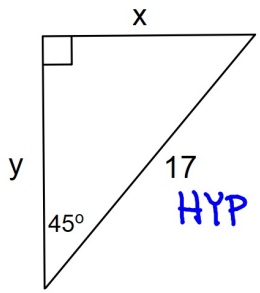
$x = 8$

y is the hypotenuse:

$y = 8\sqrt{2}$

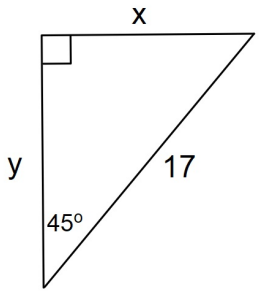
$180 - 90 - 45 = 45$.

Find the EXACT value of x and y in this triangle. Give answers in simplified radical form.



x and y are both legs, therefore, they will be congruent:

$x = y = \frac{17}{\sqrt{2}}$

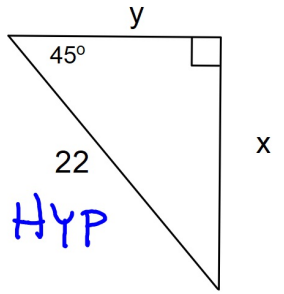


This is where we'll need to rationalize the denominator:

$x = y = \frac{17}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$

$= \frac{17\sqrt{2}}{2}$

Find the EXACT value of x and y in this triangle. Give answers in simplified radical form.

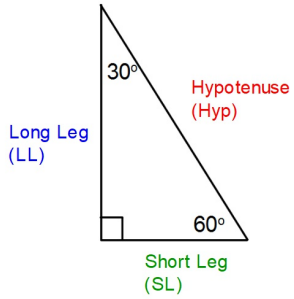


$x = y = \frac{22}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$

$= \frac{22\sqrt{2}}{2}$

$= 11\sqrt{2}$

30° - 60° - 90° Triangle:

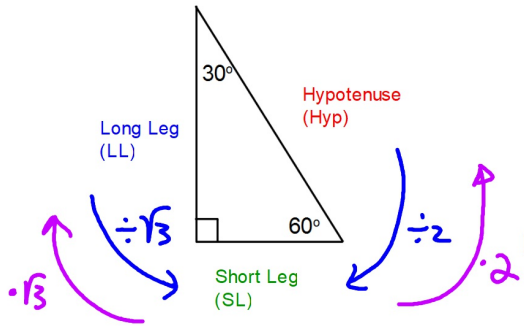


Hyp is always opposite the 90° angle.

LL is always opposite the 60° angle.

SL is always opposite the 30° angle.

30° - 60° - 90° Triangle:



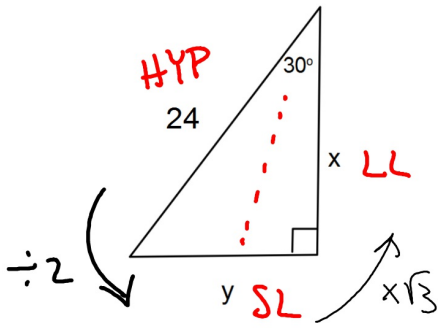
SL = Hyp ÷ 2

SL = LL ÷ √3

LL = SL · √3

Hyp = SL · 2

Find the EXACT value of x and y in this triangle. Give answers in simplified radical form.

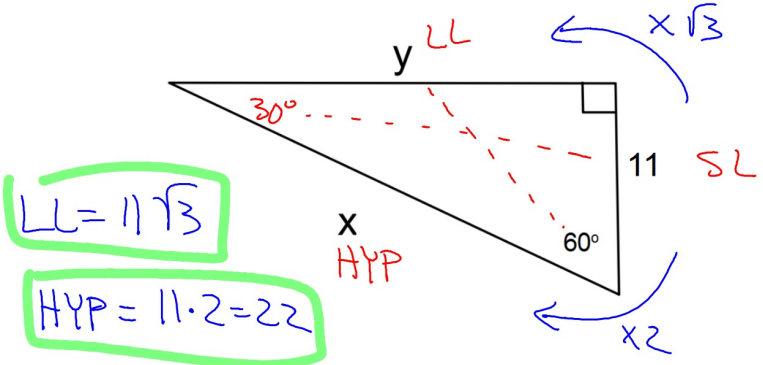


SL = 24 ÷ 2

SL = 12

LL = 12√3

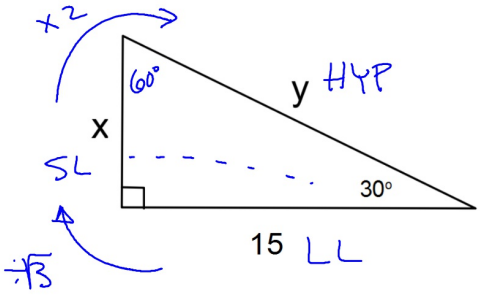
Find the EXACT value of x and y in this triangle. Give answers in simplified radical form.



LL = 11√3

HYP = 11 · 2 = 22

Find the EXACT value of x and y in this triangle. Give answers in simplified radical form.



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

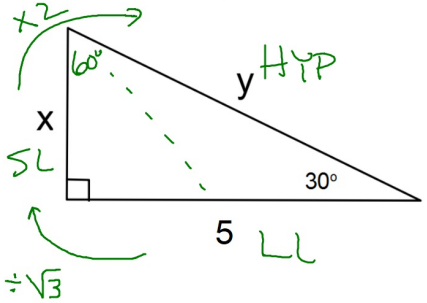
SL = $\frac{15\sqrt{3}}{3}$

SL = 5√3

HYP = 5√3 · 2

HYP = 10√3

Find the EXACT value of x and y in this triangle. Give answers in simplified radical form.



$X = \frac{5}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$

$X = \frac{5\sqrt{3}}{3}$

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

$y = \frac{10\sqrt{3}}{3}$

Today's Practice:

Work on the five problems on Practice #1 that can be found by clicking the link on today's blog post.

Also on this link will be the answers.

Geo and Alg Hwk assignments will be due when we return. See the next two pages for those assignments.

Due when we return to school

Geometry

Hwk #16:

Sec 8-2

Page 428

Problems 2-5, 8, 11-13, 18, 22

Alg 2

Hwk #13 Due when we return to school

Practice Sheet: Special Right Triangles.

Find the EXACT value of each variable. Give answers in simplified radical form.