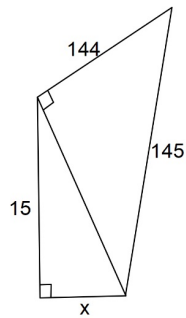


Find the value of x.



1st

$$A^2 + 144^2 = 145^2$$

$$A^2 = 145^2 - 144^2$$

$$A = \sqrt{145^2 - 144^2}$$

$$A = 17$$

2nd

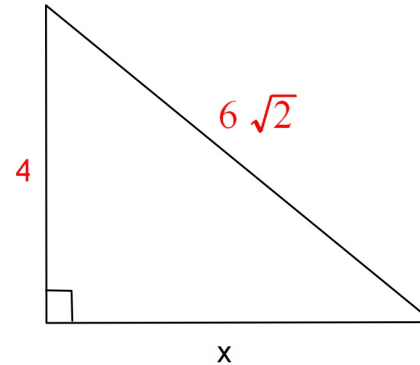
$$17^2 = x^2 + 15^2$$

$$17^2 - 15^2 = x^2$$

$$x = \sqrt{17^2 - 15^2}$$

$$x = 8$$

Find the value of x in simplified radical form.



$$(6\sqrt{2})^2 = 4^2 + x^2$$

$$6^2 \cdot (\sqrt{2})^2 = 16 + x^2$$

$$36 \cdot 2 = 16 + x^2$$

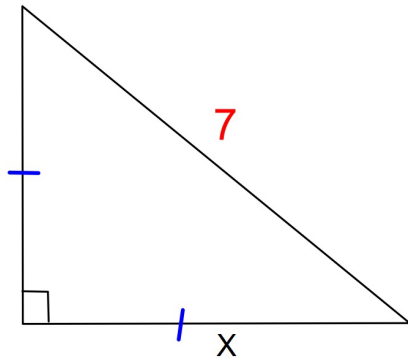
$$72 = 16 + x^2$$

$$56 = x^2$$

$$x = \sqrt{56} = \sqrt{4 \cdot 14}$$

$$x = 2\sqrt{14}$$

Find the value of x in simplified radical form.



Legs are \cong

$$x^2 + x^2 = 7^2$$

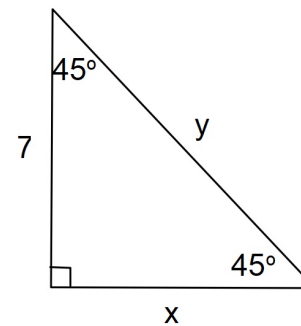
$$2x^2 = 49$$

$$x^2 = \frac{49}{2}$$

$$x = \sqrt{\frac{49}{2}}$$

$$x = \frac{7}{\sqrt{2}}$$

Find the value of each missing side. Leave non-integer answers in simplified radical form.



Since this is an isosceles \triangle the legs are \cong

$$x = 7$$

$$y^2 = 7^2 + 7^2$$

$$y^2 = 49 + 49$$

$$y^2 = 2 \cdot 49$$

$$y = \sqrt{2 \cdot 49}$$

$$y = 7\sqrt{2}$$

Sec 8-2: Special Right Triangles.

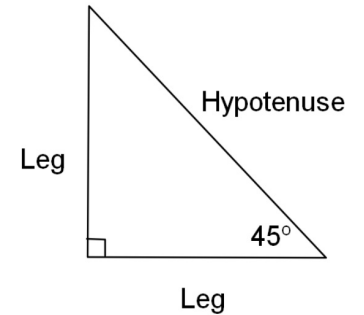
45° - 45° - 90° Triangle:

also known as an isosceles right triangle.

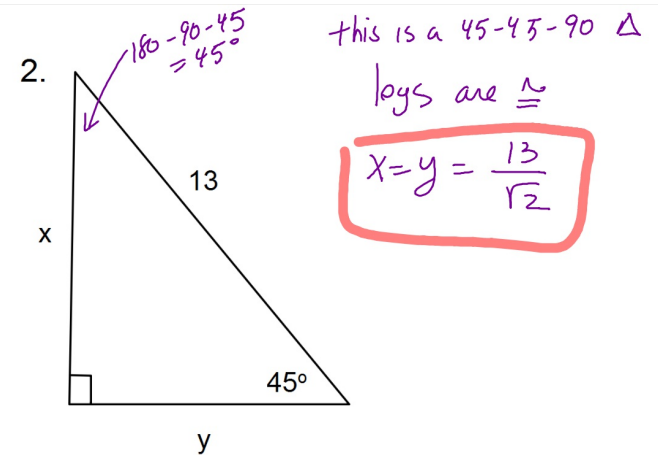
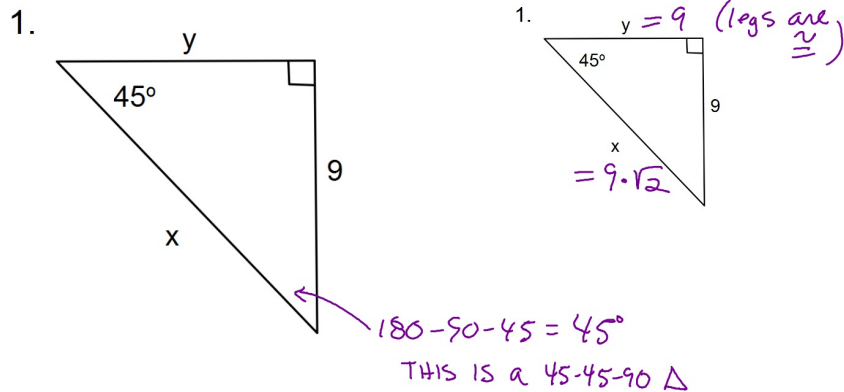
- Legs are congruent

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

- $\text{Leg} = \frac{\text{Hypotenuse}}{\sqrt{2}}$



Find the value of each missing side.
Give answers in simplified radical form.



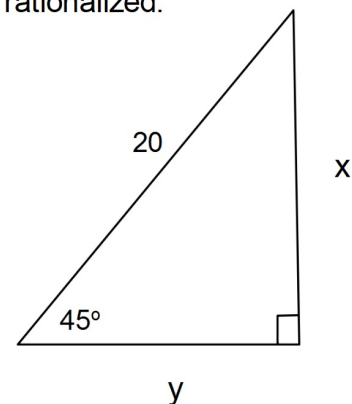
Rationalizing a denominator.

Since $\sqrt{2}$ is an irrational number we must do something to eliminate it from the denominator.

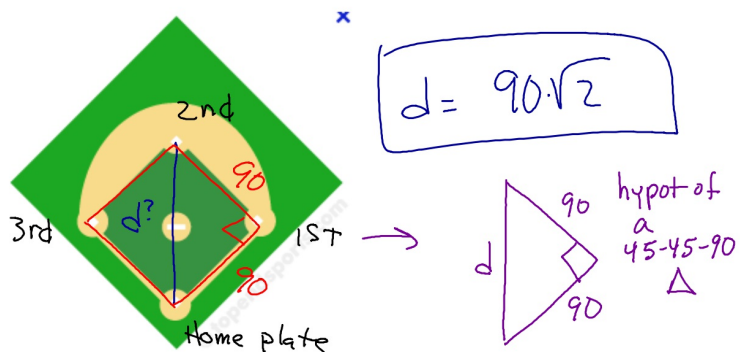
$$\frac{13}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{13\sqrt{2}}{2}$$

Find the length of each leg.
Make sure the denominator is rationalized.

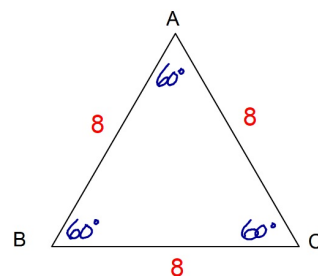
$$\begin{aligned} y = x &= \frac{20}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} \\ &= \frac{20\sqrt{2}}{2} \\ &= \boxed{10\sqrt{2}} \end{aligned}$$



A baseball diamond is a square formed by the four bases. The bases are 90 feet apart. How far is it across the diamond from home plate to second base?

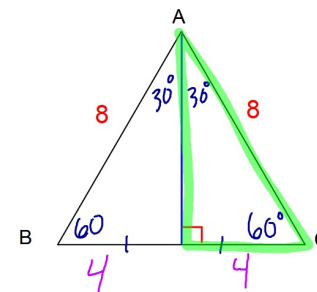


ABC is an equilateral triangle.
All sides have a length of 8.



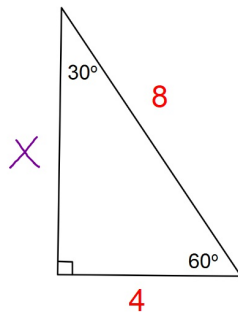
Draw an altitude from pt. A.

What does this altitude do to the triangle?



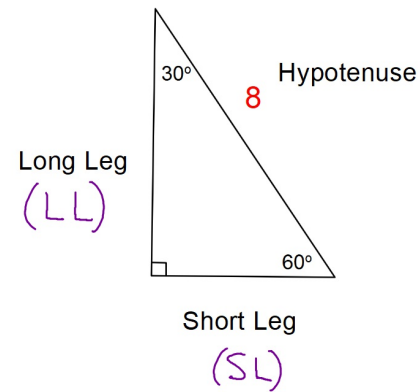
The altitude bisects $\angle A$ and \overline{BC}

Find the length of the third side in simplified radical form.



$$\begin{aligned} 8^2 &= 4^2 + X^2 \\ 64 &= 16 + X^2 \\ 48 &= X^2 \\ \sqrt{48} &= \sqrt{16 \cdot 3} = X \\ \boxed{X} &= 4\sqrt{3} \end{aligned}$$

30° - 60° - 90° Right Triangle:



- the Hypotenuse is always opposite the right angle.
- the Long Leg is always opposite the 60° angle.
- the Short Leg is always opposite the 30° angle.

Short Leg \longleftrightarrow Hypotenuse

$$SL = \text{Hypot} \times \underline{2}$$

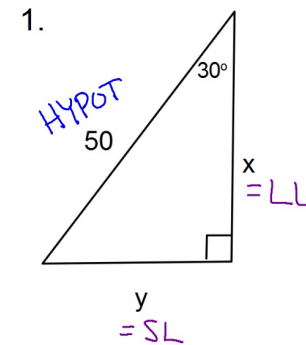
$$\text{Hypot} = SL \div \underline{2}$$

Short Leg \longleftrightarrow Long Leg

$$SL = LL \times \underline{\sqrt{3}}$$

$$LL = SL \div \underline{\sqrt{3}}$$

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



$$SL = 50 \div 2$$

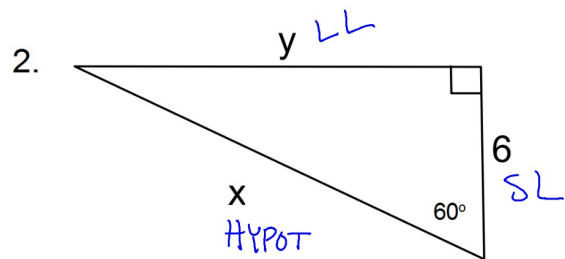
$$SL = 25$$

$$\boxed{y = 25}$$

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

$$LL = 25 \cdot \sqrt{3}$$

$$\boxed{x = 25\sqrt{3}}$$



$$\text{HYPOT} = \text{SL} \cdot 2$$

$$x = 6 \cdot 2 = 12$$

$$\text{LL} = \text{SL} \cdot \sqrt{3}$$

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

Hwk #16:

Sec 8-2

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