

# Special Right Triangles

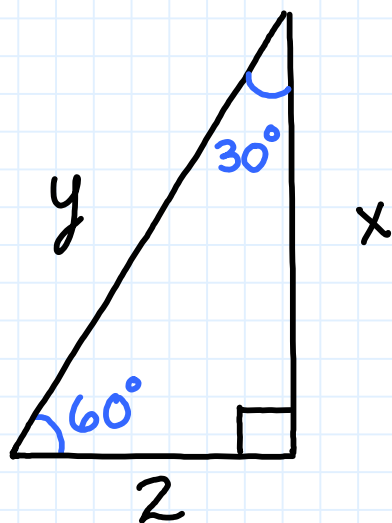
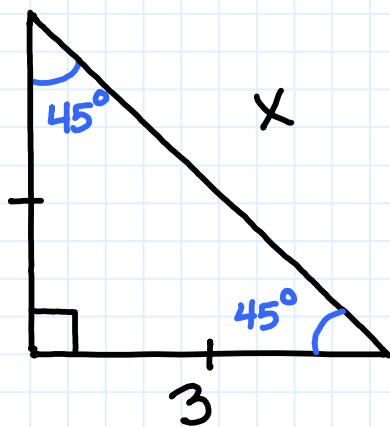


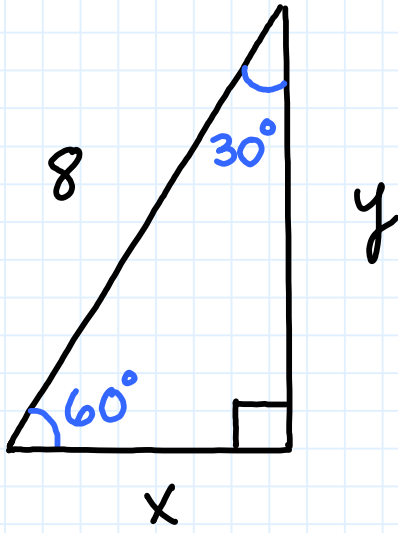
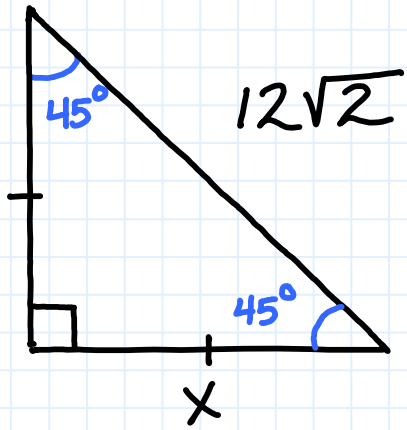
## Overview of problems



Example Set: A

Find the value of the variable

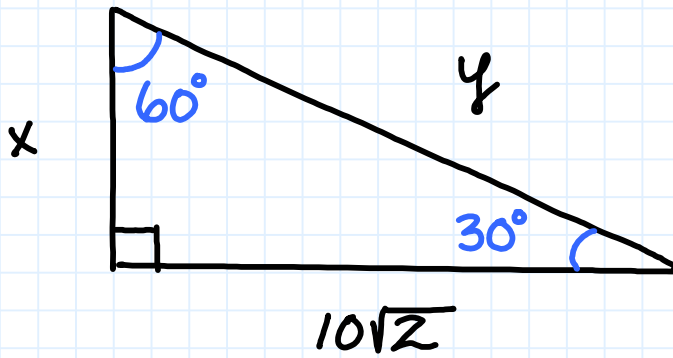
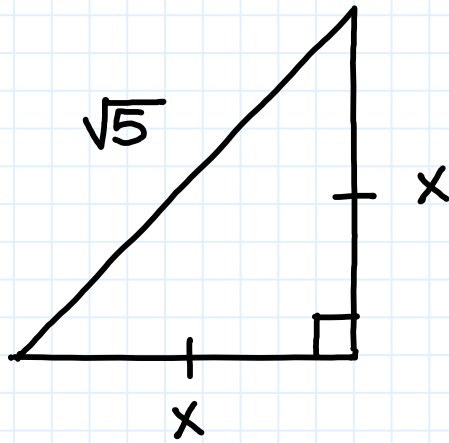






# Example Set: B

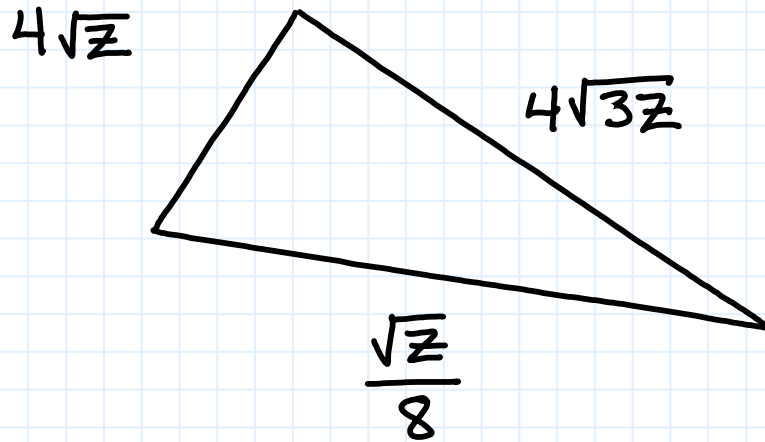
Find the value of the variable



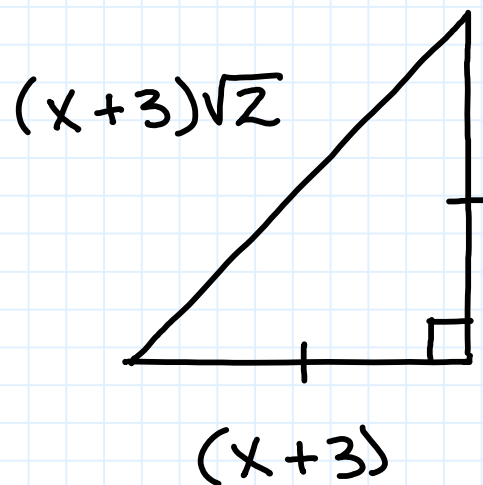


## Example Set: C

Determine if the triangle is a right triangle



Use the **Pythagorean Theorem** to show the length of the hypotenuse is correct.



# Special Right Triangles

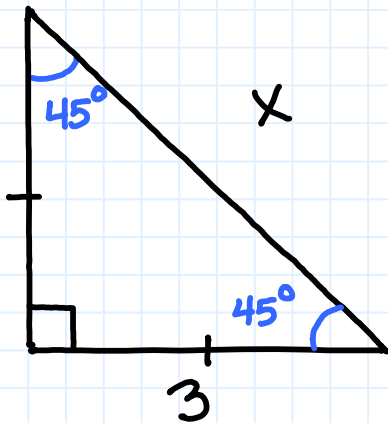


## Overview of problems- KEY

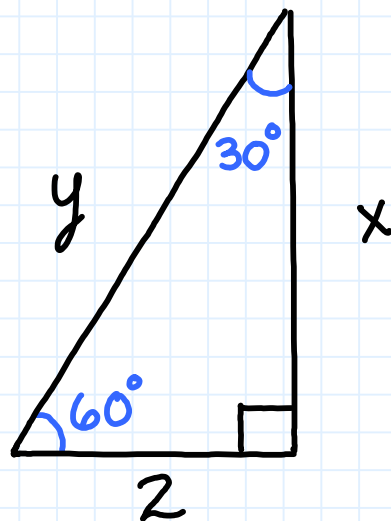


Example Set: A

Find the value of the variable

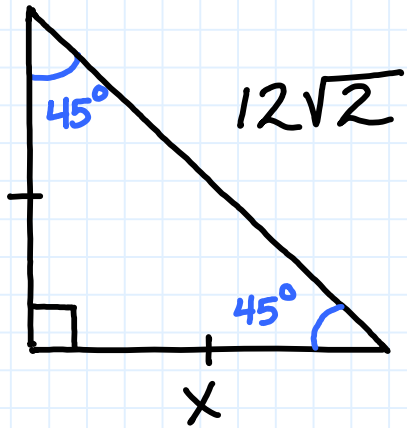


$$x = 3\sqrt{2}$$

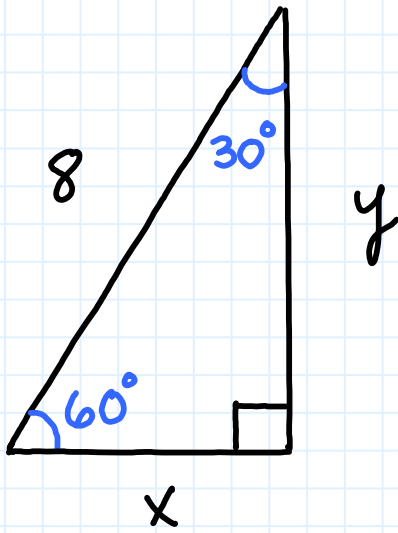


$$x = 2\sqrt{3}$$

$$y = 4$$



$$x = 12$$



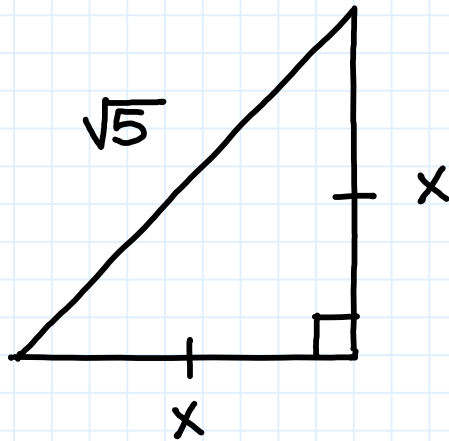
$$x = 4$$

$$y = 4\sqrt{3}$$

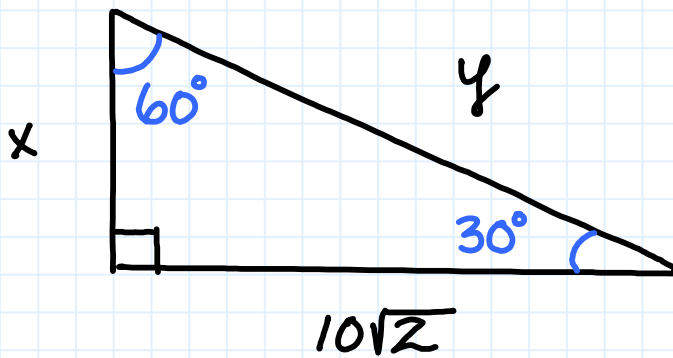


## Example Set: B

Find the value of the variable



$$x = \frac{\sqrt{10}}{2}$$



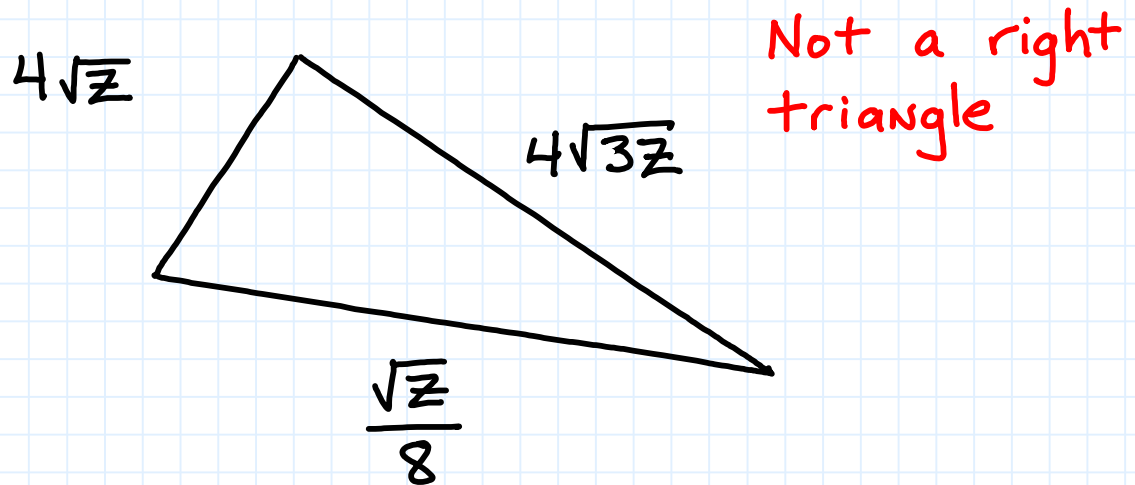
$$x = \frac{10\sqrt{6}}{3}$$

$$y = \frac{20\sqrt{6}}{3}$$

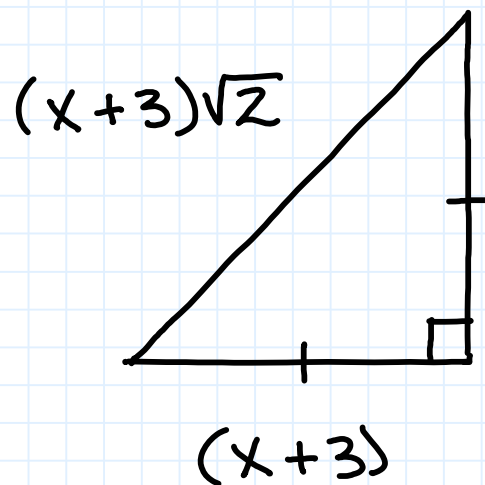


## Example Set: C

Determine if the triangle is a right triangle



Use the **Pythagorean Theorem** to show the length of the hypotenuse is correct.



$$a^2 + b^2 = c^2$$

$$(x+3)^2 + (x+3)^2 = [(x+3)\sqrt{2}]^2$$

$$x^2 + 6x + 9 + x^2 + 6x + 9 = (x+3)(x+3)\sqrt{2} \cdot \sqrt{2}$$

$$x^2 + 6x + 9 + x^2 + 6x + 9 = (x^2 + 6x + 9)2$$

$$x^2 + 6x + 9 + x^2 + 6x + 9 = 2x^2 + 12x + 18$$

$$2x^2 + 12x + 18 = 2x^2 + 12x + 18$$

$$\emptyset = \emptyset$$

$$a^2 + b^2 = c^2$$