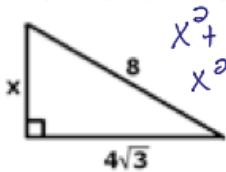


Honors Math 2 Pythagorean Theorem

Key



Find the value of x.

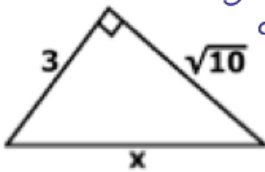


$$x^2 + (4\sqrt{3})^2 = 8^2$$

$$x^2 + 16(3) = 64$$

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

1. $x = \underline{4}$

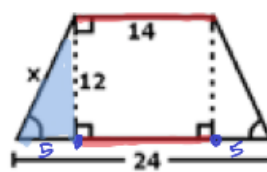


$$3^2 + (x)^2 = (\sqrt{10})^2$$

$$9 + 10 = x^2$$

$$\sqrt{19} = x$$

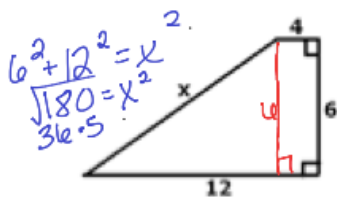
2. $x = \underline{\sqrt{19}}$



$$12^2 + 5^2 = x^2$$

$$\sqrt{169} = x^2$$

3. $x = \underline{13}$

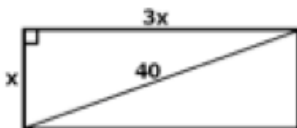


$$6^2 + 12^2 = x^2$$

$$\sqrt{180} = x^2$$

$$36 \cdot 5 = x^2$$

4. $x = \underline{6\sqrt{5}}$



$$x^2 + (3x)^2 = 40^2$$

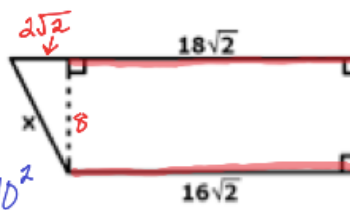
$$x^2 + 9x^2 = 1600$$

$$10x^2 = 1600$$

$$x^2 = \sqrt{160}$$

$$16 \cdot 10$$

5. $x = \underline{4\sqrt{10}}$



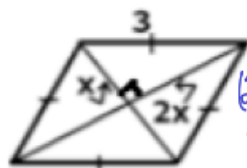
$$8^2 + (2\sqrt{2})^2 = x^2$$

$$64 + 4(2) = x^2$$

$$\sqrt{72} = x^2$$

$$36 \cdot 2$$

6. $x = \underline{6\sqrt{2}}$



$$(2x)^2 + x^2 = 3^2$$

$$4x^2 + x^2 = 9$$

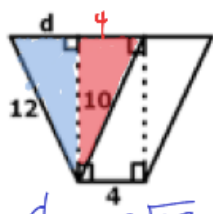
$$5x^2 = 9$$

$$x^2 = \frac{9}{5}$$

$$x = \sqrt{\frac{9}{5}}$$

$$\frac{\sqrt{9}}{\sqrt{5}} = \frac{3\sqrt{5}}{5}$$

7. $x = \underline{\frac{3\sqrt{5}}{5}}$



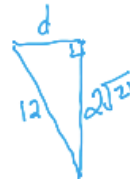
$$4^2 + x^2 = 10^2$$

$$x^2 = \sqrt{84}$$

$$4 \cdot 21$$

$$2\sqrt{21}$$

8. $x = \underline{2\sqrt{15}}$



$$d^2 + (2\sqrt{21})^2 = 12^2$$

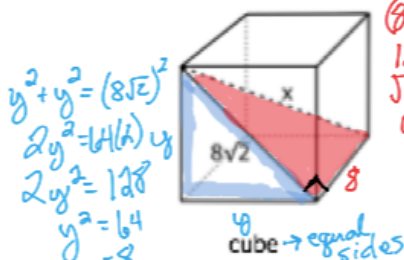
$$d^2 + 4(21) = 144$$

$$d^2 = \sqrt{60}$$

$$4 \cdot 15$$

$$2\sqrt{15}$$

Find the value of each variable.



$$y^2 + y^2 = (8\sqrt{2})^2$$

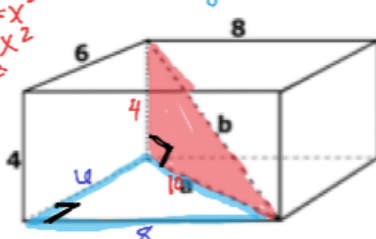
$$2y^2 = 4(64)$$

$$2y^2 = 256$$

$$y^2 = 128$$

$$y = 8$$

9. $x = \underline{8\sqrt{3}}$



$$6^2 + 8^2 = a^2$$

$$\sqrt{100} = a^2$$

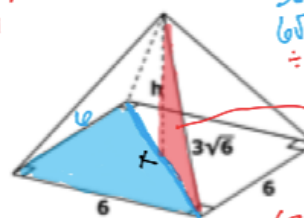
$$10^2 + 4^2 = b^2$$

$$\sqrt{116} = b^2$$

$$4 \cdot 29$$

10. $a = \underline{10}$

$b = \underline{2\sqrt{29}}$



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

$$\sqrt{72} = x^2$$

$$36 \cdot 2$$

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

$$\div 2$$

$$(3\sqrt{2})^2 + h^2 = (3\sqrt{6})^2$$

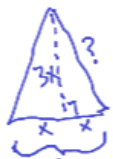
$$9(2) + h^2 = 9(6)$$

$$18 + h^2 = 54$$

$$h^2 = \sqrt{36}$$

$$6$$

11. $h = \underline{6}$

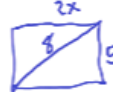


12. The base of an isosceles triangle is 2x cm long. The altitude to the base is 3x cm long. Find the length of one other side of the triangle.

$$(3x)^2 + x^2 = y^2$$

$$9x^2 + x^2 = y^2$$

$$\sqrt{10x^2} = y^2$$



13. Find the perimeter of a rectangle that has diagonal length eight and a side of length five.

$$5^2 + x^2 = 8^2$$

$$x^2 = 39$$

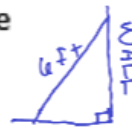
$$x = \sqrt{39}$$

$$P = \underline{10 + 2\sqrt{39}}$$

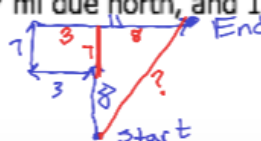
14. A 6-ft ladder is placed against a wall with its base 2 ft from the wall. How high above the ground is the top of the ladder?

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

$$x^2 = \sqrt{32} = 4\sqrt{2} \approx 5.7 \text{ ft}$$



15. A person travels 8 mi due north, 3 mi due west, 7 mi due north, and 11 mi due east. How far is the person from the starting point?



$$8^2 + 15^2 = x^2$$

$$\sqrt{289} = x^2$$

$$x = \underline{17 \text{ miles}}$$