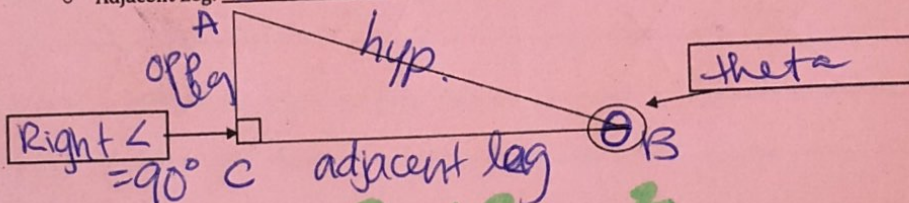


Pythagorean Theorem

Right Triangles and Special Sides

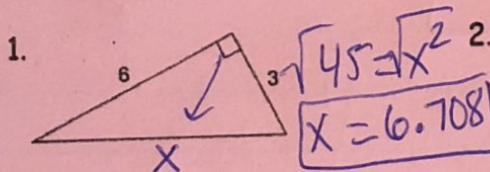
- A right triangles has three special sides
- These sides are dependent on the angles: a right \angle and a theta (another \angle)
 - Hypotenuse: across from the right \angle
 - Opposite Leg: does not touch theta
 - Adjacent Leg: side that touches theta



Pythagorean Theorem:

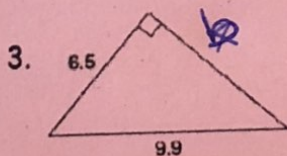
$$a^2 + b^2 = c^2$$

- Used to find the missing sides in a right triangle
- "a" and "b" represent the legs
- "c" represents the hypotenuse
- Examples: Find the missing sides using Pythagorean theorem



$$6^2 + 3^2 = x^2$$

$$36 + 9 = x^2$$

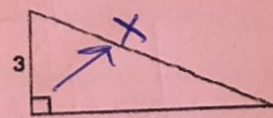


$$6.5^2 + b^2 = 9.9^2$$

$$42.25 + b^2 = 98.01$$

$$\sqrt{b^2} = \sqrt{55.76}$$

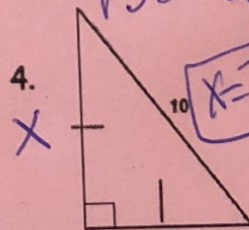
$$b = 7.47$$



$$3^2 + 12^2 = x^2$$

$$9 + 144 = x^2$$

$$\sqrt{153} = \sqrt{x^2}$$



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

$$2x^2 = 100$$

$$\frac{2x^2}{2} = \frac{100}{2}$$

$$\sqrt{x^2} = \sqrt{50}$$

$$x = 7.07$$