

Radical Play

$$\textcircled{1} \sqrt{20} = \sqrt{4 \cdot 5} = \boxed{2\sqrt{5}}$$

$$\textcircled{2} 2\sqrt{12} = 2 \cdot \sqrt{4 \cdot 3} = 2 \cdot 2\sqrt{3} = \boxed{4\sqrt{3}}$$

$$\textcircled{3} (\sqrt{7})^2 = \sqrt{49} = \boxed{7}$$

$$\textcircled{4} (3\sqrt{5})^2 = 3\sqrt{5} \cdot 3\sqrt{5} = 9\sqrt{25} = 9 \cdot 5 = \boxed{45}$$

Does it make a triangle?

①



12

yes

$$8 + 7 > 12 \checkmark$$

$$7 + 12 > 8 \checkmark$$

$$12 + 8 > 7 \checkmark$$

②



3

$$1 + 3 < 8$$

NOT a triangle

What kind of triangle is it?

$$\textcircled{1} a^2 + b^2 = c^2$$

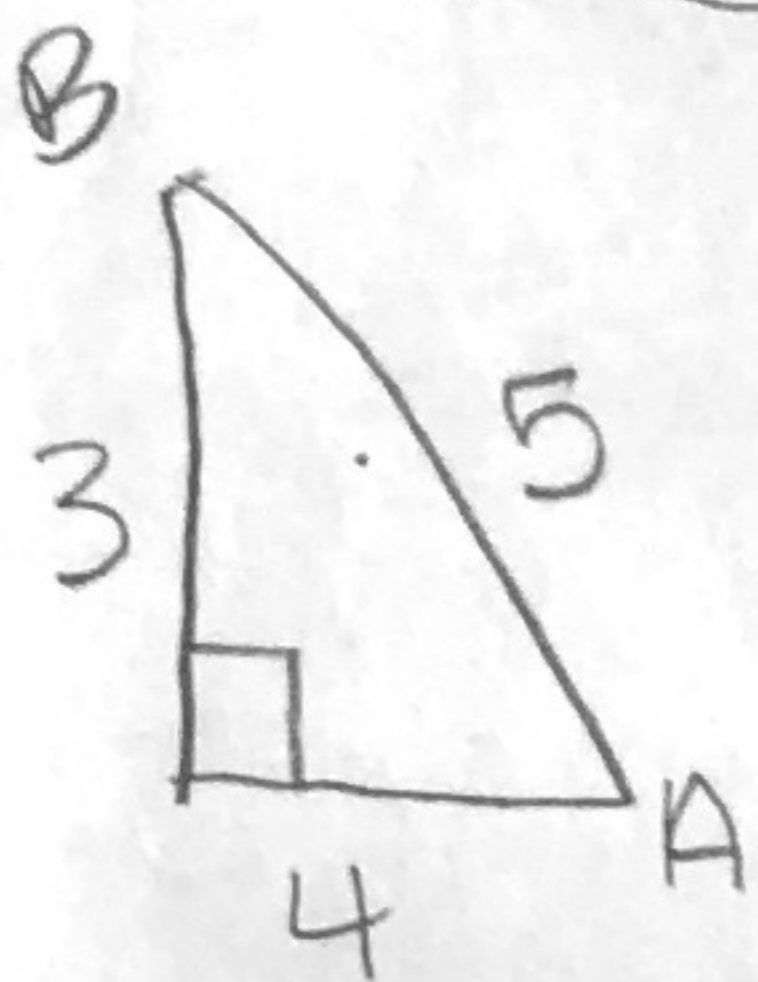
Right

$$\textcircled{2} a^2 + b^2 > c^2$$

Acute

$$\textcircled{3} a^2 + b^2 < c^2$$

Obtuse

Trig Ratios = Sine Cosine Tangent
SOH CAH TOA

$$\sin A = \frac{3}{5}$$

$$\cos A = \frac{4}{5}$$

$$\tan A = \frac{3}{4}$$

$$\sin B = \frac{4}{5}$$

$$\cos B = \frac{3}{5}$$

$$\tan B = \frac{4}{3}$$

Solve a triangle means, find all angles
 • find all side lengths

Solve for Angles

① IF you have:

1 angle AND
 rt angle

• Angles sum to 180°

(ex)



$$\angle A + 35 + 90 = 180$$

② IF YOU HAVE:

2 sides NO ANGLES

• Inverse Trig

(ex)



choose trig

$$\sin A = \frac{3}{10}$$

$$\sin^{-1}\left(\frac{3}{10}\right) = A$$

$$\angle A = 17.45^\circ$$

Solve for Side Lengths

① IF YOU HAVE

2 sides

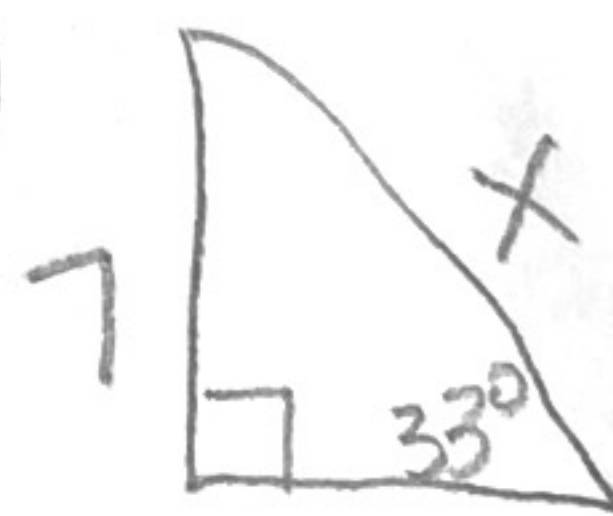
• $a^2 + b^2 = c^2$

② IF YOU HAVE

1 angle 1 side

• use trig

(ex)



choose trig function

$$\sin 33 = \frac{7}{x}$$

$$x \cdot 0.545 = \frac{7}{x} \cdot x$$

$$0.545x = 7$$

$$\frac{0.545x}{0.545} = \frac{7}{0.545}$$

$$x = 12.84$$