

# SOLVING W/ PYTHAG THEOREM

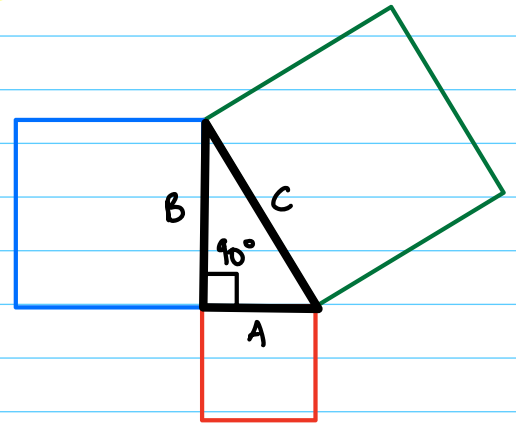
$$A^2 + B^2 = C^2$$

SOLVE for A:

$$A^2 = C^2 - B^2$$

SOLVE for B:

$$B^2 = C^2 - A^2$$



**PYTHAGOREAN TRIPLE** → 3 WHOLE NUMBERS THAT SATISFY THE PYTHAG EQUATION ( $A^2 + B^2 = C^2$ ) WHERE C IS THE LONGEST SIDE

EX: 3, 4, 5

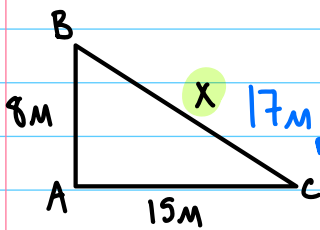
5, 12, 13

10, 24, 26

6, 8, 10

8, 15, 17

SOLVE for the UNKNOWN SIDE to the NEAREST TENTH.



$$A^2 + B^2 = C^2$$

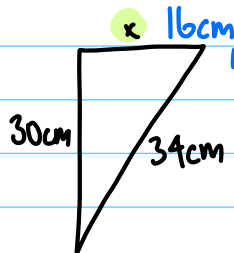
$$15^2 + 8^2 = C^2$$

$$225 + 64 = C^2$$

$$289 = C^2$$

$$\sqrt{289} = C$$

$$17 = C$$



$$A^2 + B^2 = C^2$$

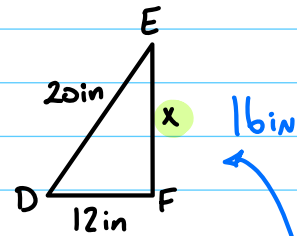
$$A^2 = 34^2 - 30^2$$

$$A^2 = 1156 - 900$$

$$A^2 = 256$$

$$A = \sqrt{256}$$

$$A = 16$$



$$A^2 + B^2 = C^2$$

$$B^2 = 20^2 - 12^2$$

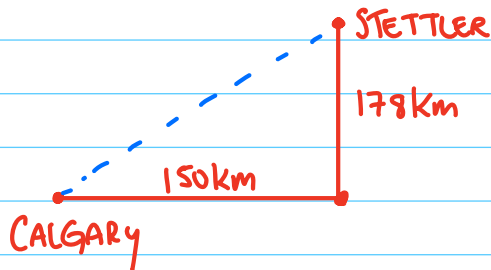
$$B^2 = 400 - 144$$

$$B^2 = 256$$

$$B = \sqrt{256}$$

$$B = 16$$

Mr. Polsky drove 150 km East from Calgary, Alberta. He drove another 178 km North to Stettler, Alberta. What would be the shortest possible distance between Mr. Polsky's home and Stettler, Alberta?



$$A^2 + B^2 = C^2$$

$$150^2 + 178^2 = C^2$$

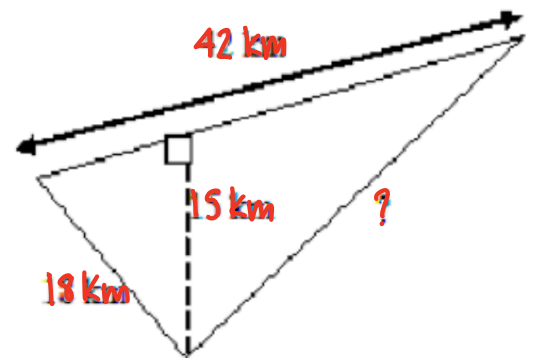
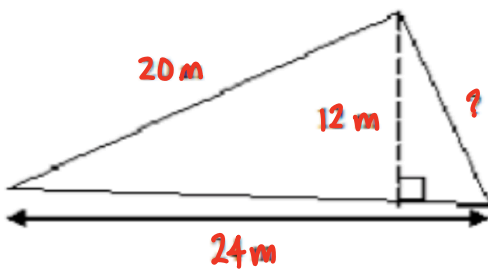
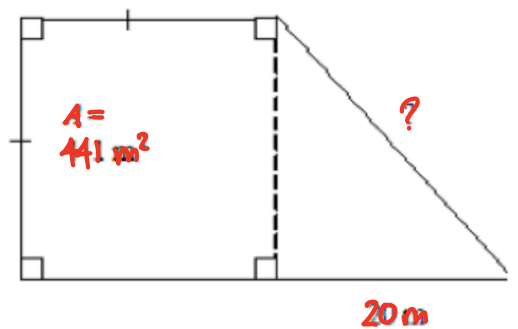
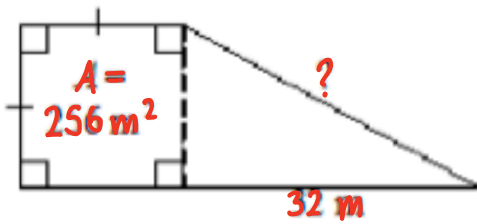
$$22500 + 31684 = C^2$$

$$54184 = C^2$$

$$\sqrt{54184} = C$$

$$232.8 = C$$

The shortest distance is 232.8 km



$A = 256 \text{ m}^2$

$x = ?$

$32 \text{ m}$

$x = 35.8 \text{ m}$

$A = L \times W$   
 $A = L^2$   
 $256 = L^2$   
 $\sqrt{256} = L$   
 $16 = L$

$A^2 + B^2 = C^2$   
 $32^2 + 16^2 = C^2$   
 $1024 + 256 = C^2$   
 $1280 = C^2$   
 $\sqrt{1280} = C$   
 $35.8 = C$

$A = 441 \text{ m}^2$

$x = ?$

$20 \text{ m}$

$29 \text{ m}$

$A^2 + B^2 = C^2$   
 $20^2 + 441 = C^2$   
 $400 + 441 = C^2$   
 $841 = C^2$   
 $\sqrt{841} = C$   
 $29 = C$

$20 \text{ m}$

$12 \text{ m}$

$16 \text{ m}$

$24 \text{ m}$

$?$

$A^2 = 20^2 - 12^2$   
 $A^2 = 400 - 144$   
 $A^2 = 256$   
 $A = 16$

$A^2 + B^2 = C^2$   
 $12^2 + 8^2 = C^2$   
 $144 + 64 = C^2$   
 $208 = C^2$   
 $\sqrt{208} = C$   
 $14.4 = C$