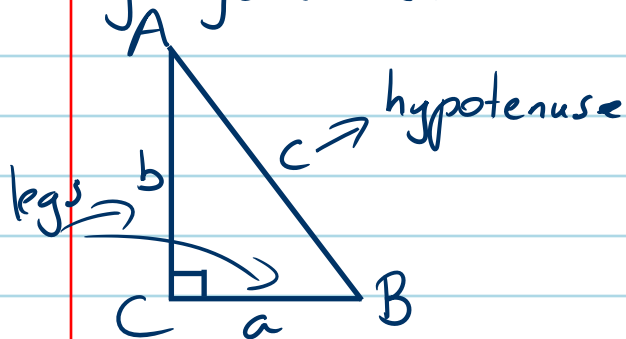


Unit 6 Day 3

6-3 Pythagorean Theorem

Pythagoras (6th Century BC)



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

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

1) If $a=20$ and $b=21$, find c .

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

$$c^2 = 20^2 + 21^2$$

$$= 400 + 441$$

$$c^2 = 841$$

$$c = \sqrt{841} = 29$$

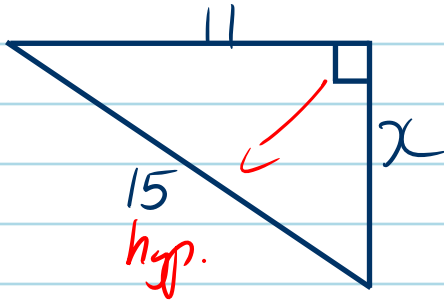
2) If $a=28$ and $c=53$, find b .

$$28^2 + b^2 = 53^2$$

$$\begin{array}{r} -28^2 \\ \hline b^2 = 53^2 - 28^2 \end{array}$$

$$b = 45$$

3) Solve for x exactly, then round to 2 decimal places.



$$x^2 + 11^2 = 15^2$$

$$x^2 = 15^2 - 11^2$$

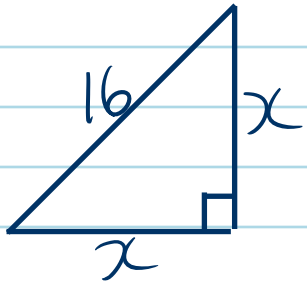
$$= 225 - 121$$

$$= 104$$

$$x = \sqrt{104}$$

$$x \approx 10.20$$

4) Solve for x :



$$x^2 + x^2 = 16^2$$

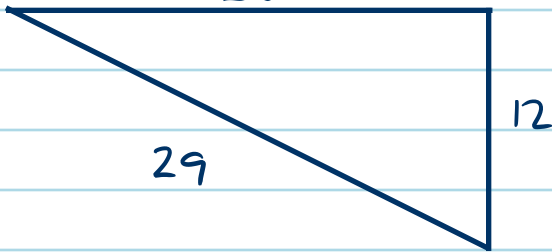
$$a^2 + b^2 = c^2$$

$$2x^2 = 16^2$$

$$\frac{2x^2}{2} = \frac{256}{2}$$

$$x = \sqrt{128}$$

5) Is this a right angled Δ ?



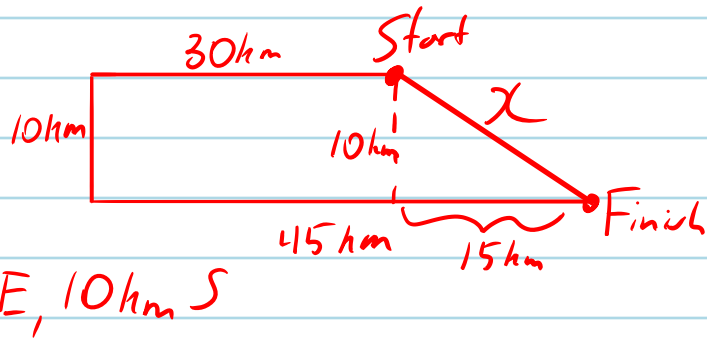
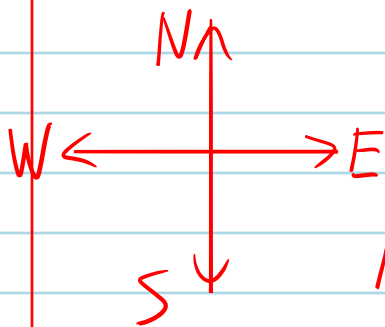
$$12^2 + 25^2 = 29^2$$

$$144 + 625 = 841$$

$$769 \neq 841$$

\therefore Not a R.A.T.

6) A ship travels 30km West, turns South for 10km, then East for 45km. How far is it from where it started?



$$\begin{aligned} x^2 &= 10^2 + 15^2 \\ &= 100 + 225 \\ &= 325 \end{aligned}$$

$$\begin{aligned} x &= \sqrt{325} \\ x &\approx 18.0 \text{ km} \end{aligned}$$

Practice 6-3