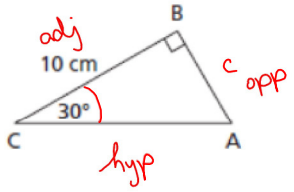
MAAPC20S Trigonometry Lesson 2

Lesson Two – Tangent Ratio to find Lengths

Example 1

Determine the length of AB to the nearest tenth of a centimetre.



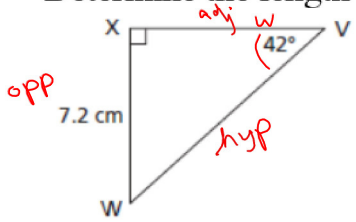
$\tan C = \frac{opp}{adj}$

$\tan 30° = \frac{c}{10}$ (10)

$c = 5.8$ cm

Example 2

Determine the length of VX to the nearest tenth of a centimetre.



$\tan V = \frac{opp}{adj}$

$\tan 42° = \frac{7.2}{w}$ (w)

$\frac{(\tan 42°)\,w}{\tan 42°} = \frac{7.2}{\tan 42°}$

$w = 8.0$ cm

$w = 7.996...$

to solve for an angle ⟶ use $\tan^{-1}$ on calc

to solve for a length (side) ⟶ use tan on calc

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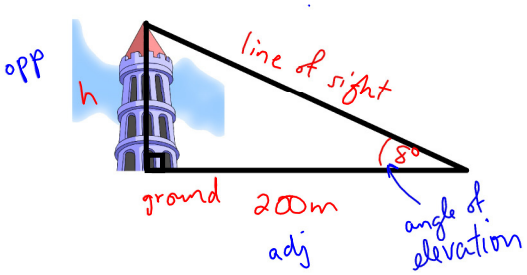
Example 3

At a horizontal distance of 200 m from the base of an observation tower, the angle between the ground and the line of sight to the top of the tower is 8°. How high is the tower to the nearest metre?



$\tan 8° = \frac{h}{200}$

$\tan 8°(200) = h$

$28.1 = h$

∴ the tower is 28 m high.

Assignment: Pg. 82; ~~5, 6, 7, 8, 12~~
#4a 5b, 7, 8