

$\sin \theta = \frac{\text{opp}}{\text{hyp}}$

$\cos \theta = \frac{\text{adj}}{\text{hyp}}$

$\tan \theta = \frac{\text{opp}}{\text{adj}}$

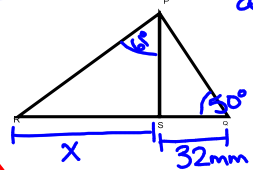
Unit 2: Trigonometry

KEEP CALM
AND
SOHCAHTOA

2.4 Problem Solving

*2 triangles: ① Find side in common. ② Use it to find final answer.

Ex.) In the diagram QS = 32 mm, angle PQS = 50° and angle RPS = 61°. Use this information to determine the length of QR to the nearest mm.



$\tan 61^\circ = \frac{x}{32}$

$x = 38.13...$

$x = 69$

$\tan 50^\circ = \frac{y}{32}$

$y = 38.13...$

$QR = 69 + 32 = 101 \text{ mm}$

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Unit 2: Trigonometry

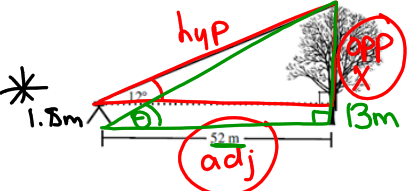
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Ex.) Karmen is using a transit to determine the height of a tree. The transit is 52 m from the base of the tree and the angle to the top of the tree is 12°.

a) If the transit is 1.8 m high, calculate the height of the tree.

$\tan 12^\circ = \frac{x}{52}$

$x = 11.05 + 1.8 = \text{height} = 13 \text{ m}$



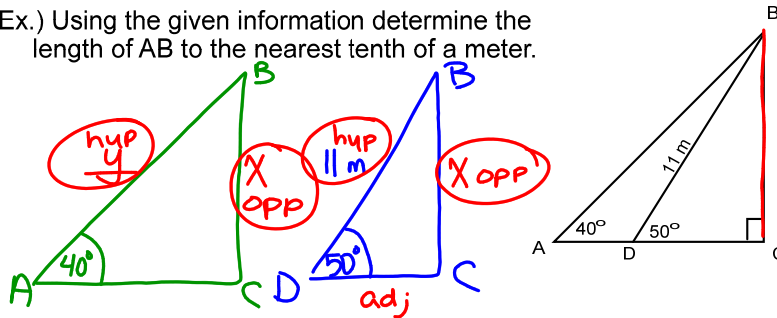
b) Determine the angle the base of the transit makes with the top of the tree.

$\tan \theta = \frac{12.85...}{52}$

$\theta = 14^\circ$

$\sin \theta = \frac{\text{opp}}{\text{hyp}}$ $\cos \theta = \frac{\text{adj}}{\text{hyp}}$ $\tan \theta = \frac{\text{opp}}{\text{adj}}$		 KEEP CALM AND SOHCAHTOA
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Ex.) Using the given information determine the length of AB to the nearest tenth of a meter.



$$\sin 50^\circ = \frac{X}{11}$$

$$X = 8.4264...$$

$$\sin 40^\circ = \frac{8.4264...}{y}$$

$$\div y$$

$y = 13.1 \text{ m}$