Lesson Plan

Grade 10 Academic Math **Lesson: 7 - 8**

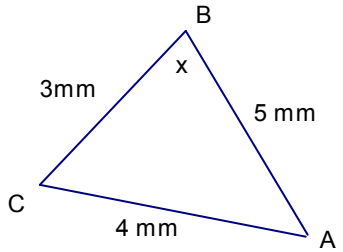
Unit: Trigonometry **Topic: Mixed Trig Problems**

- ***homework check:*** **Principles of Mathematics 10 p. 450 # 3 – 6, 10, 13, 14**

- ***note:*** **Mixed Trig Problems**

It is very important when trig problems are mixed to ensure you are identifying the correct type of triangle and choosing the right method to solve. A diagram must be part of any solution.

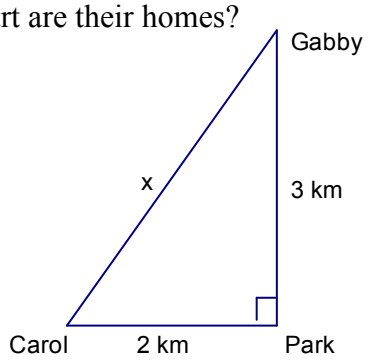
a) $a = 3mm, b = 4mm,$ and $c = 5mm,$ find B.



$$x = cos^{-1}\left[\frac{\left(4^2 - 5^2 - 3^2\right)}{\left(-2 \times 5 \times 3\right)}\right]$$

$$x = 53.1°$$

b) Carol lives 2 km west of the park. Her friend Gabby lives 3 km north of the park. How far apart are their homes?



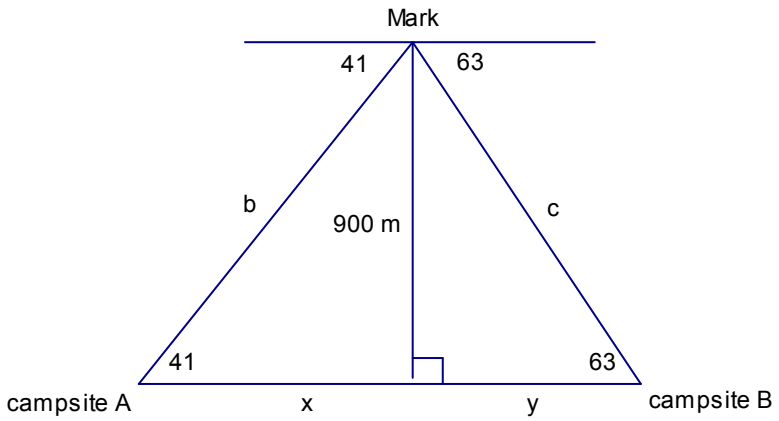
We can use Pythagorean Theorem to find the unknown in this problem.

$$x^2 = 3^2 + 2^2$$

$$x = \sqrt{3^2 + 2^2}$$

$$x = 3.6km$$

c) From a bridge over a ravine, Mark can see two campsites, one at an angle of depression of 63 degrees and one at an angle of 41 degrees. If the bridge is 900m above the bottom of the ravine, how far apart are the campsites? How far is Mark from camps A and B?



$$\tan 41 = \frac{900}{x}$$
$$x = \frac{900}{\tan 41}$$
$$x = 1035.3m$$

$$\tan 63 = \frac{900}{y}$$
$$y = \frac{900}{\tan 63}$$
$$y = 458.6m$$

$$x + y = 1035.3 + 458.6$$
$$\text{Distance between camps} = 1493.9m$$

Distance between Mark and camp A

$$\cos 41 = \frac{1053.3}{b}$$
$$b = \frac{1053.3}{\cos 41}$$
$$b = 1395.6m$$

Distance between Mark and camp B

$$\cos 63 = \frac{458.6}{c}$$
$$c = \frac{458.6}{\cos 63}$$
$$c = 1010.2m$$

homework assignment: **<u>Principles of Mathematics 10</u> p. 456**