

# MAP 4CI Trigonometry Practice Test

## Do NOT write on this copy

### Multiple Choice

- 1) Which could you use to determine the measure of an angle in a triangle if you only know all three sides?  
 a) Sine Law      **b) Cosine Law**      c) Tangent Ratio      d) Sine Ratio
- 2) If angle A is obtuse, which is positive?  
**a) sin A**      b) cos A      c) tan A      d) none

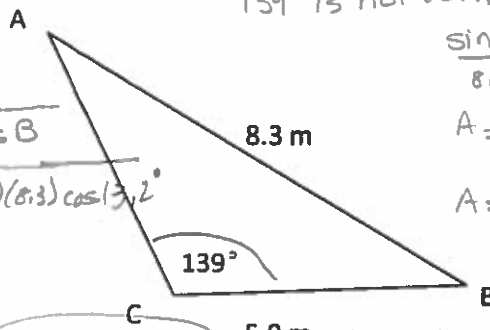
### Long Answer

3) Solve  $\triangle ABC$ .

$$b = \sqrt{a^2 + c^2 - 2ac \cos B}$$

$$= \sqrt{5.9^2 + 8.3^2 - 2(5.9)(8.3) \cos 139^\circ}$$

$$\approx 2.9 \text{ m.}$$



139° is not contained  $\angle$  so use sine law.

$$\frac{\sin 139^\circ}{8.3} = \frac{\sin A}{5.9}$$

$$A = \sin^{-1} \left( \frac{5.9 \sin 139^\circ}{8.3} \right)$$

$$A \approx 27.8^\circ$$

$$B = 180^\circ - 139^\circ - 27.8^\circ$$

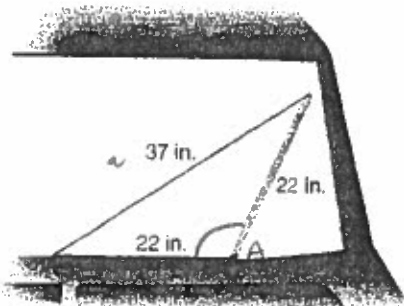
$$B \approx 13.2^\circ$$

involves 2 sides, 1 angle, 1 unknown

4) How do you decide when to use the Sine Law or the Cosine Law to solve a triangle problem? Give examples to illustrate your explanation.

know 2 sides, contained angle, need 3rd side.  
 know 3 sides, want angle  
 involves 3 sides, 1 angle

5) A car windshield wiper is 22 inches long. Through which angle did the blade in this diagram rotate?

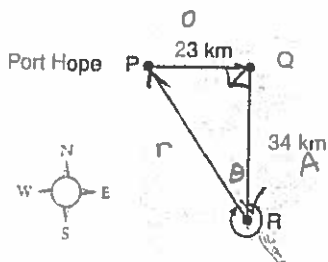


$$A = \cos^{-1} \left( \frac{22^2 + 22^2 - 37^2}{2(22)(22)} \right)$$

$$= 114.472^\circ$$

$$\approx 114^\circ$$

6) A sailboat leaves Port Hope and sails 23 km due east, then 34 km due south.



- a) On what bearing will the boat travel on its way back to the starting point?  
 b) How far is the boat from the starting point?  
 c) What assumptions did you make to answer parts a and b?

a)  $\theta = \tan^{-1} \left( \frac{23}{34} \right)$   
 $\approx 34^\circ$

Direction:  $N 34^\circ W$   
 Bearing:  $326^\circ$

b)  $r^2 = 34^2 + 23^2$   
 $r^2 = 1156 + 529$   
 $r^2 = 1685$   
 $r = \sqrt{1685}$   
 $r \approx 41 \text{ km}$

c) no wind/current