

Date: \_\_\_\_\_

1. Given a scalene triangle  $\triangle ABC$  where  $\angle A = 29^\circ$ ,  $a = 54\text{cm}$ , and  $b = 63\text{cm}$ . Solve  $\triangle ABC$ . Show all your work and steps (6 marks)

2. Two ships sail from the same port. The first ship sails on a bearing of  $22^\circ$  at a speed of 12km/h. The second ship sails on a bearing of  $310^\circ$  at a speed of 9km/h. How far will the two ships be apart after 2.5hours? Show all your work and steps (5marks)

3. Solve the equation for  $0 \leq \theta \leq 360^\circ$ .  $6\cos^2 \theta + 11\cos \theta = 10$ . Show all your work and steps.

4. Given that  $\sin \theta = \frac{3}{7}$  and  $90^\circ \leq \theta \leq 180^\circ$ , what is the exact value of the equation below. Show all your work and steps (4 marks)  $2(\cos \theta) - 4(\tan \theta) + 14(\sin \theta)$