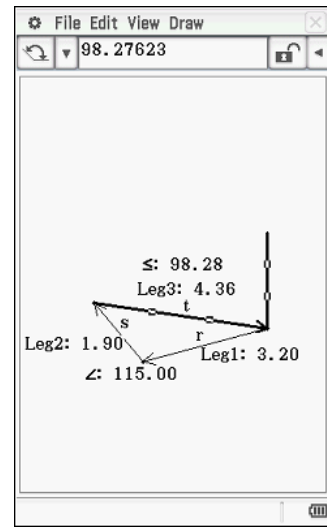
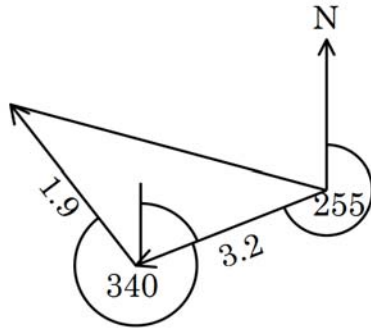


Activity 6

Magnitude and direction basics

1.



2. From Geometry, Distance ≈ 4.36 km and bearing $\approx 98.3^\circ$ ($180 - 81.7^\circ$)

3.

$$x^2 = 1.9^2 + 3.2^2 - 2 \times 1.9 \times 3.2 \times \cos(115)$$

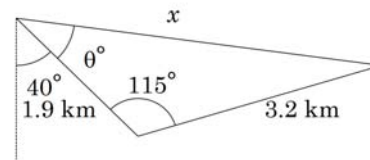
$$x \approx 4.36 \text{ km}$$

$$\frac{\sin \theta}{3.2} = \frac{\sin(115^\circ)}{4.36}$$

$$\theta \approx 41.7^\circ$$

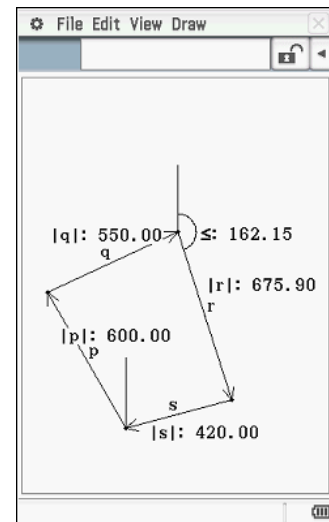
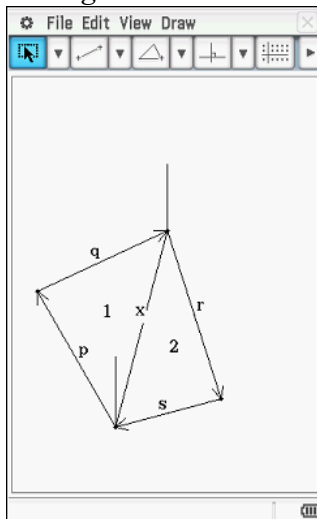
$$\therefore \text{Bearing} = 180^\circ - 40^\circ - \theta$$

$$\approx 98.3^\circ$$



4. Scale diagram
Second leg distance ≈ 675.9 m
Bearing $\approx 162.15^\circ$

5. To solve the problem manually, the quadrilateral could be split into two triangles as shown in the diagram below.



The length and bearing of x could be found from triangle 1 and used to determine the length and bearing of r in triangle 2.