ANSWER SHEET

THE SINE RULE

Q1

$$\frac{a}{\sin A} = \frac{b}{\sin B}$$

$$\frac{x}{\sin 40} = \frac{15}{\sin 100}$$

$$x = \frac{(\sin 40)\,15}{(\sin 100)}$$

$$x = 9.8 \quad (1\ dp)$$

Q2

$$\frac{x}{\sin(45)} = \frac{6}{(\sin 55)}$$

$$x = \frac{6}{(\sin 55)}\,(\sin 45)$$

$$x = 5.17 \quad (3\ SF)$$

Q3

$$\frac{\sin x}{5.5} = \frac{\sin 96}{6.8}$$

$$\sin x = \frac{\sin 96}{6.8} \times 5.5$$

$$x = \sin^{-1}(0.8043)$$

$$x = 53.5 \quad (3\ SF)$$

Q4

$$\frac{\sin x}{12} = \frac{\sin 65}{16}$$

$$\sin x = \frac{\sin 65}{16} \times 12$$

$$\sin x = 0.6797$$

$$x = 42.8 \quad (3\ SF)$$

Q5

$180 - 54 - 21 = 105$

$$\frac{x}{\sin(105)} = \frac{13}{\sin(54)}$$

$$x = \frac{13}{\sin(54)} \times \sin(105)$$

$x = 15.5$ (1 dp)

Q6

$$\frac{\sin x}{22} = \frac{\sin 45}{16}$$

$$\sin x = \frac{\sin 45}{16} \times 22$$

$\sin x = 0.9722$

$x = 76.4$ (3 SF)

Q7

$$y^2 + (6)^2 = (14)^2$$

$$y^2 = (14)^2 - (6)^2$$

$$y^2 = 160$$

$$y = 12.64$$

$$180 - 42 - 63 = 75$$

$$\frac{x}{\sin 75} = \frac{12.64}{\sin 42}$$

$$x = \frac{12.64}{\sin 42} \times \sin 75$$

$$x = 18.2 \quad (1\ dp)$$

Q8

$180 - 108 - 45 = 27$

$$\frac{x}{\sin(45)} = \frac{13.2}{\sin(108)}$$

$$x = \frac{13.2}{\sin(108)} \times \sin(45)$$

$$x = 9.8141$$

$$\frac{y}{\sin 27} = \frac{13.2}{\sin 108}$$

$$y = 6.30$$

$$x + y + 13.2$$

$$= 29.3 \quad (3\ SF)$$

Q9

$$\frac{x}{\sin 80} = \frac{13}{\sin 42}$$

$$x = 19.1330$$

$$180 - 80 - 42 = 58$$

$$\text{Area} = \frac{1}{2}(19.1330)(13)\sin(58)$$

$$\text{Area} = 105.4\ m^2 \quad (1\ dp)$$

Q10

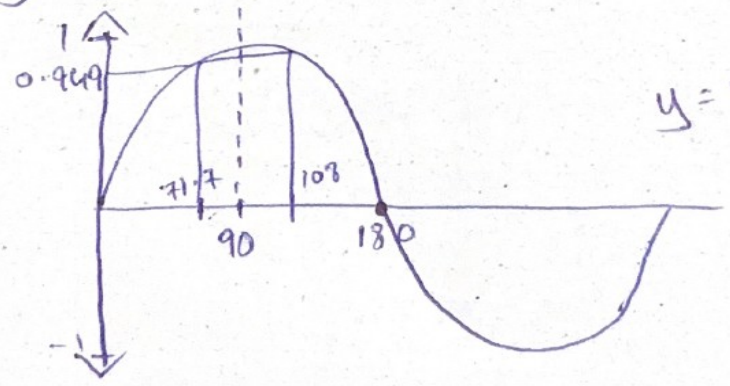
3) $$\frac{\sin x}{21} = \frac{\sin(36)}{13}$$

$$\sin x = \frac{\sin(36)}{13} \times 21 \qquad \sin(x) = 0.9494$$

$$x = \sin^{-1}(0.9494)$$

$$x = 71.7$$

Actually, ABC is obtuse



sine graph is symmetrical about 90°

$$180 - 71.9 = 108 \quad (3\ SF)$$
