ANSWER SHEET

FINDING THE AREA OF ANY TRIANGLE

Q1

$$\text{Area} = \frac{1}{2} ab\sin C$$

$$= \frac{1}{2}(14)(13)\sin(130)$$

$$= 69.7 \quad (1 \text{ dp})$$

Q2

$$\frac{1}{2}(6)(9)\sin 40$$

$$= 17.35$$

$$\doteq 17.3 \quad (3 \text{ SF})$$

Q3

$$\frac{1}{2}(16)(17)\sin(110)$$

$$= 127 \quad (3\ SF)$$

Q4

$$\frac{1}{2}(11)(10)\sin 35$$

$$= 31.54\ m^2$$

Q5

$$\frac{1}{2}(18)(12)\sin x = 80$$

$$108 \sin x = 80$$

$$\sin x = \frac{80}{108}$$

$$\sin x = 0.7407$$

$$x = 47.7^\circ \quad (1 \text{ dp})$$

Q6

$$\frac{1}{2}(16)(22)\sin x = 120$$

$$176 \sin x = 120$$

$$\sin x = 0.6818$$

$$42.9^\circ \quad (3 \text{ SF})$$

Q7

$$\frac{1}{2}(16)(17)\sin x = 106$$

$$136 \sin x = 106$$

$$\sin x = 0.7794$$

$$x = 51.2^\circ \quad (1 \text{ dp})$$

Q8

$$\frac{1}{2}(5)(10)\sin x = 20$$

$$\sin x = \frac{20}{25}$$

$$\sin x = 0.8$$

$$x = 53.1^\circ \quad (3 \text{ SF})$$

Q9

$\frac{1}{2}(y)(y+4)\sin 60 = 8\sqrt{3}$

$\frac{1}{2}(y)(y+4)\frac{\sqrt{3}}{2} = 8\sqrt{3}$ $\quad \because \sin 60 = \frac{\sqrt{3}}{2}$

$\frac{\sqrt{3}}{4} y(y+4) = 8\sqrt{3}$

$\cancel{\sqrt{3}}\, y(y+4) = 32\cancel{\sqrt{3}}$

$y^2 + 4y = 32$

$y^2 + 4y - 32 = 0$

$y^2 + 8y - 4y - 32 = 0$

$y(y+8) - 4(y+8) = 0$

$(y+8)(y-4) = 0$

$y = -8 \quad , \quad \underline{\underline{y = 4}}$ Ans

$\downarrow$

Not possible because lenght cannot be negative

Q10

Lenght of BC to lenght AC is 3 : 1

$\frac{1}{2}(x)(3x)\sin(30) = 60$

$\frac{1}{2}3x^2\left(\frac{1}{2}\right) = 60 \quad \therefore \sin 30 = \frac{1}{2}$

$3x^2 = 240$

$x^2 = 80$

$x = \pm 8.94$

$\underline{\underline{x = +8.94}} \qquad x = -8.94$

ANS

$\Downarrow$

Not possible as Lenght cannot be negative

Q11

(11) $\frac{1}{2}(x+2)(x+3)\sin 60 = 50$

$(x^2+3x+2x+6)\left(\frac{\sqrt{3}}{2}\right) = 100$

$x^2+5x+6 = \frac{200}{\sqrt{3}}$

$x^2+5x+6 = 115.47$

$x^2+5x-109.47 = 0$

$a = 1, \ b = 5, \ c = -109.47$

using, $\frac{-b \pm \sqrt{b^2-4ac}}{2a}$, by solving we get

$= 8.25$ (3 SF) , -13.25

↳ Lenghts cannot be negative

So,

$x = \underline{\underline{8.25}}$