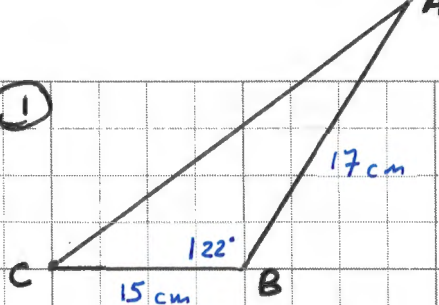


①



$$c^2 = a^2 + b^2 - 2ab \cos B$$

$$AC^2 = CB^2 + AB^2 - 2 \cdot CB \cdot AB \cdot \cos B$$

$$AC^2 = 15^2 + 17^2 - 2 \cdot 15 \cdot 17 \cdot \cos 122^\circ$$

$$AC^2 = 225 + 289 - 510 \cdot \cos 122$$

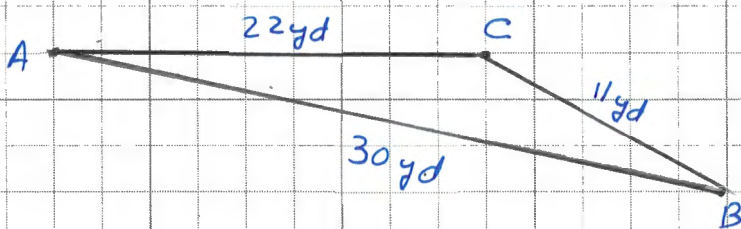
$$AC^2 = 514 - (-270.258824\dots)$$

$$AC^2 = 784.258824\dots$$

$$AC = 28.00462\dots$$

$$AC \approx 28 \text{ cm}$$

②



$$c^2 = a^2 + b^2 - 2ab \cdot \cos C$$

$$30^2 = 11^2 + 22^2 - 2 \cdot 11 \cdot 22 \cdot \cos C$$

$$900 = 121 + 484 - 484 \cdot \cos C$$

$$900 = 605 - 484 \cdot \cos C$$

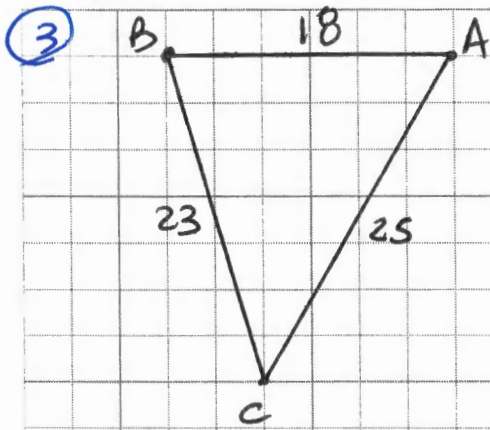
$$295 = -484 \cos C$$

$$\cos C = -\frac{295}{484}$$

$$C = \cos^{-1}\left(-\frac{295}{484}\right)$$

$$C = 127.5536571\dots$$

$$C \approx 127.6^\circ$$



Find B

$$b^2 = a^2 + c^2 - 2ac \cos B \quad \text{Law of Cosines}$$

$$25^2 = 23^2 + 18^2 - 2 \cdot 23 \cdot 18 \cdot \cos B$$

$$625 = 529 + 324 - 828 \cdot \cos B$$

$$625 = 853 - 828 \cos B$$

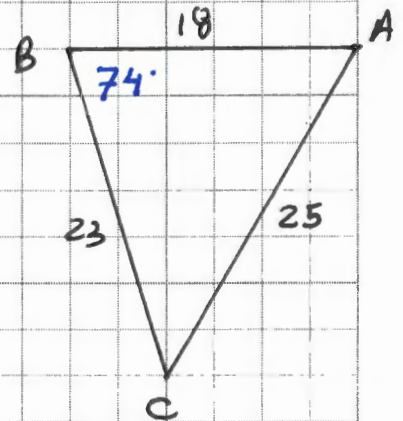
$$-228 = -828 \cos B$$

$$\cos B = \frac{-228}{-828}$$

$$B = \cos^{-1}\left(\frac{228}{828}\right)$$

$$B = 74.0163928\dots$$

$$B \approx 74.0$$



Law of Sines

Find C

$$m\angle A + m\angle B + m\angle C = 180^\circ$$

$$62.2^\circ + 74^\circ + m\angle C = 180^\circ$$

$$136.2^\circ + m\angle C = 180^\circ$$

$$m\angle C = 43.8^\circ$$

Find A

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

$$\frac{\sin 74^\circ}{25} = \frac{\sin A}{23}$$

$$23 \cdot \frac{\sin 74^\circ}{25} = \frac{\sin A}{\cancel{23}} \cdot \cancel{23}$$

$$\sin A = \frac{23 \cdot \sin 74^\circ}{25}$$

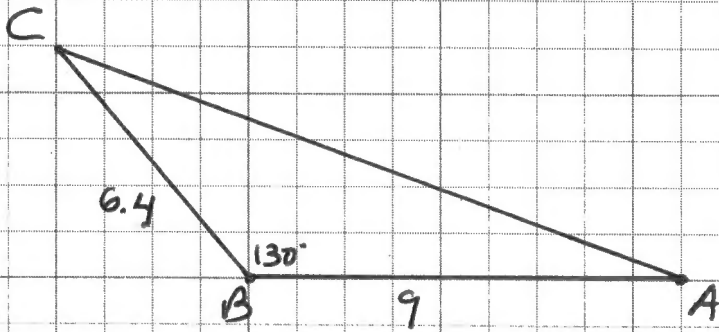
$$\sin A = 0.8843607\dots$$

$$A = \sin^{-1}(0.8843607\dots)$$

$$A = 62.17295861\dots^\circ$$

$$A \approx 62.2^\circ$$

9



$$\text{Area} = \frac{1}{2} \cdot a \cdot c \cdot \sin 130^\circ$$

$$\text{Area} = \frac{1}{2} \cdot 6.4 \cdot 9 \cdot \sin 130^\circ$$

$$\text{Area} = 22.06207996 \dots$$

$$\text{Area} \approx 22.1 \text{ units}^2$$