

Angeles City Science High School

Mathematics 9

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Section: 9 – Adenine

Activity A

$$1. C = 180 - (132 + 16.4)$$

$$C = 31.6^\circ$$

$$\frac{55}{\sin 31.6^\circ} = \frac{b}{\sin 132^\circ}$$

$$\rightarrow \frac{55 \sin 132^\circ}{\sin 31.6} = b$$

$$\rightarrow b = 78 \text{ m}$$

$$2. \cos A = \frac{b^2 + c^2 - a^2}{2bc}$$

$$\cos A = \frac{(11.2)^2 + (24)^2 - (16)^2}{2(11.2)(24)}$$

$$A = \cos^{-1} \left(\frac{(11.2)^2 + (24)^2 - (16)^2}{2(11.2)(24)} \right)$$

$$A = 34.05^\circ$$

$$3. b^2 = a^2 + c^2 - 2ac(\cos B)$$

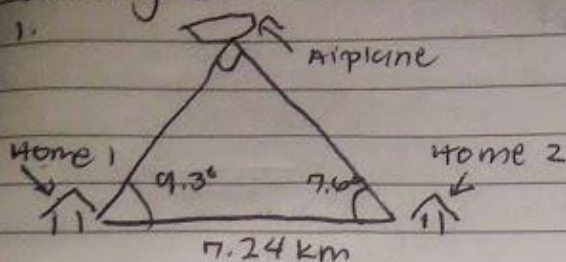
$$\sqrt{b^2} = \sqrt{a^2 + c^2 - 2ac(\cos B)}$$

$$\sqrt{b^2} = \sqrt{(63)^2 + (52.5)^2 - 2(63)(52.5)(\cos 62.5)}$$

$$b = 60.59 \text{ m}$$

Activity B.

1.



~~$$\cos B = \frac{a^2 + c^2 - b^2}{2ac}$$~~

$$B = 180 - (9.3 + 7.6)$$

$$B = 163.1^\circ$$

$$\frac{7.24}{\sin 163.1^\circ} = \frac{c}{\sin 7.6^\circ}$$

$$\rightarrow 7.24 \sin 7.6^\circ = c \sin 163.1^\circ$$

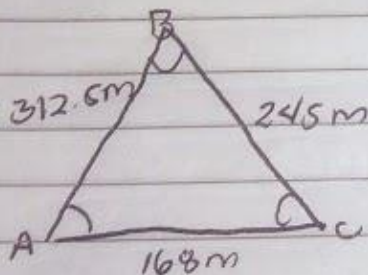
$$\rightarrow \boxed{c = 3.29 \text{ km}}$$

$$\rightarrow \frac{7.24}{\sin 163.1} = \frac{a}{\sin 9.3^\circ}$$

$$\rightarrow 7.24 \sin 9.3^\circ = a \sin 163.1$$

$$\rightarrow \boxed{a = 4.02 \text{ km}}$$

2.

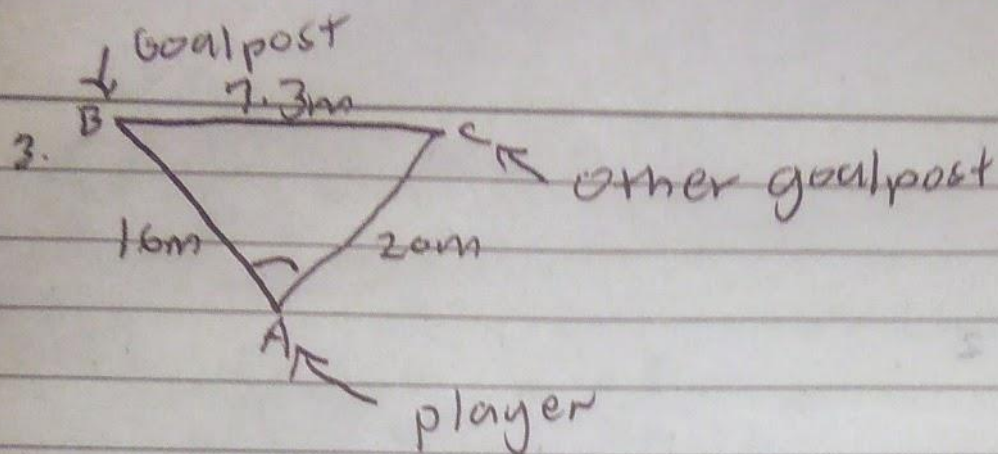


$$\cos C = \frac{a^2 + b^2 - c^2}{2ab}$$

$$\cos C = \frac{(245)^2 + (168)^2 - (312.5)^2}{2(245)(168)}$$

$$C = \cos^{-1} \left(\frac{(245)^2 + (168)^2 - (312.5)^2}{2(245)(168)} \right)$$

$$\boxed{C = 96.56^\circ}$$



$$\cos A = \frac{b^2 + c^2 - a^2}{2bc}$$

$$\cos A = \frac{(20)^2 + (16)^2 - (7.3)^2}{2(20)(16)}$$

$$A = \cos^{-1} \left(\frac{(20)^2 + (16)^2 - (7.3)^2}{2(20)(16)} \right)$$

$$\boxed{A = 19.66^\circ}$$