

①

a)

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

$$c^2 = 15^2 + 8^2 - 2(15)(8) \cos 70$$

$$c = 14.4$$

b)

$$\frac{\sin A}{15} = \frac{\sin 70}{14.4}$$

$$A = 78.2^\circ$$

$$78^\circ < \text{Answer} \leq 78.6$$

②

a)

$$\text{Area} = \frac{1}{2} c a \sin B$$

$$= \frac{1}{2} (11.7)(28.3) \sin 67$$

$$= 152$$

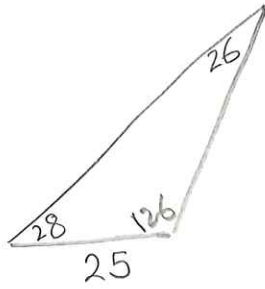
b)

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

$$b^2 = 28.3^2 + 11.7^2 - 2(28.3)(11.7) \cos 67$$

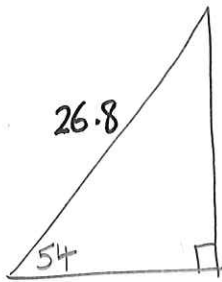
$$b = 26.1$$

3



$$\frac{BD}{\sin 28} = \frac{25}{\sin 26}$$

$$BD = 26.8$$



$$\sin 54 = \frac{DC}{26.8}$$

$$DC = 21.7$$

$$21.65 \leq \text{Answer} \leq 21.7$$

④

$$\text{Area} = \frac{1}{2} c a \sin B$$

$$10 = \frac{1}{2} (3.2)(8.4) \sin B$$

$$B = 48.1^\circ$$

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

$$b^2 = 3.2^2 + 8.4^2 - 2(3.2)(8.4) \cos 48.1$$

$$b = 6.70$$

$$\begin{aligned} \text{Perimeter} &= 3.2 + 8.4 + 6.7 \\ &= 18.3 \end{aligned}$$

$$18.29 \leq \text{Answer} \leq 18.3$$

⑤

a)

$$7.6^2 = 4.2^2 + 5.3^2 - 2(4.2)(5.3)\cos x$$

$$\cos x = \frac{7.6^2 - 4.2^2 - 5.3^2}{-2(4.2)(5.3)}$$

$$x = 105.7$$

$$105.67 \leq \text{Answer} \leq 105.7$$

b)

$$\text{Area} = \frac{1}{2}(4.2)(5.3)\sin 105.7$$

$$= 10.7$$

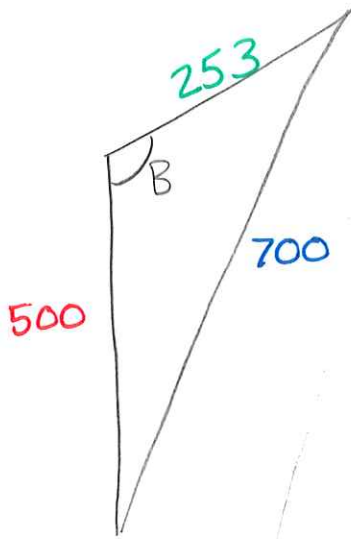
6

a)

$$BC^2 = 500^2 + 700^2 - 2(500)(700)\cos 15$$

$$BC = 253$$

c)

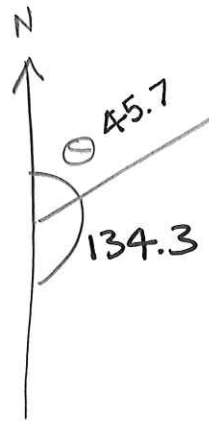


$$\frac{\sin B}{700} = \frac{\sin 15}{253}$$

$$B = 45.7$$

45.7 is acute

$$\therefore \text{obtuse angle} = 180 - 45.7 \\ = 134.3$$



$$\Theta = 046^\circ$$

⑦

a)

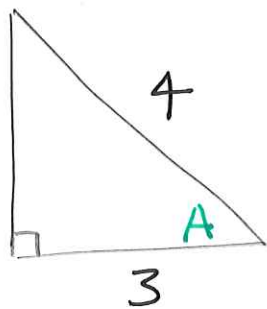
$$4^2 = 5^2 + 6^2 - 2(5)(6)\cos A$$

$$\frac{4^2 - 5^2 - 6^2}{-2(5)(6)} = \cos A$$

$$\cos A = \frac{-45}{-60}$$

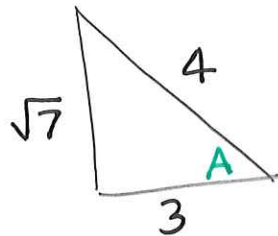
$$\cos A = \frac{3}{4}$$

b)



$$\cos A = \frac{\text{ADJ}}{\text{HYP}} = \frac{3}{4}$$

$$\sqrt{4^2 - 3^2} = \sqrt{7}$$



$$\sin A = \frac{\text{OPP}}{\text{HYP}}$$

$$\sin A = \frac{\sqrt{7}}{4}$$