

Analytical methods AC+IA 4000
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11/11/2020
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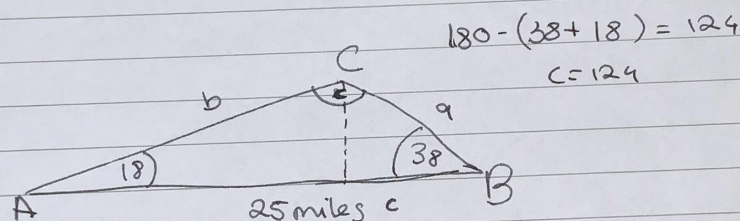
d) $y = \sin^2\left(\frac{3\theta}{2}\right)$

$$\sin^2(y) = \frac{3\theta}{2}$$

$$2 \sin^2(y) = 3\theta$$

$$\theta = \frac{2 \sin^2(y)}{3}$$

e)



Find AC and AB

Sine Rule = $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$

$$\frac{a}{\sin 18} = \frac{b}{\sin 38} = \frac{25}{\sin 124}$$

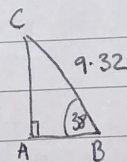
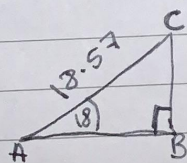
~~$\frac{a}{\sin 18} = \frac{b}{\sin 38} = \frac{25}{\sin 124}$~~

$$b \sin 124 = 25 \sin 38$$

$$b = 18.57 \text{ miles}$$

$$a \sin 38 = 18.57 \sin 18$$

$$a = 9.32 \text{ miles}$$



$$AB = \cos 38 \times 9.32$$

$$AB = 7.34 \text{ miles}$$

$$AB = \cos 18 \times 18.57$$

$$AB = 17.66 \text{ miles}$$

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