

20080331-1143

Name. Key

$$A \quad \underline{20^\circ}$$

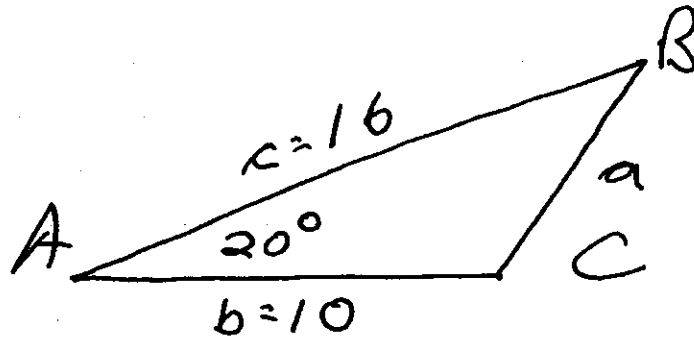
$$B \quad \underline{\hspace{2cm}}$$

$$C \quad \underline{\hspace{2cm}}$$

$$a \quad \underline{\hspace{2cm}}$$

$$b \quad \underline{10}$$

$$c \quad \underline{16}$$

1st Find a

$$\begin{aligned} a^2 &= b^2 + c^2 - 2bc \cos A \\ &= (10)^2 + (16)^2 - 2(10)(16) \cos 20^\circ \\ &= 100 + 256 - 320(.9397) \\ &= 356 - 300.7 \\ &= 55.3 \end{aligned}$$

$$a = \sqrt{55.3}$$

$$a = 7.44$$

2nd Find B

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

$$\frac{7.44}{\sin 20^\circ} = \frac{10}{\sin B}$$

$$\frac{7.44}{.3420} = \frac{10}{\sin B}$$

$$7.44 \sin B = 3.42$$

$$\sin B = \frac{3.42}{7.44}$$

$$\sin B = .4597$$

$$B = \sin^{-1}(.4597)$$

$$B = 27.4^\circ$$

3rd Find C

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

$$20^\circ + 27.4^\circ + C = 180^\circ$$

$$47.4 + C = 180^\circ$$

$$C = 180^\circ - 47.4$$

$$C = 132.6^\circ$$