Quiz 10 **Algebra & Trig** **12/2/03**

Each problem is worth 5 points. For full credit indicate clearly how you reached your answer.

1. If a triangle (with the usual labeling) has measurements a = 20, b = 14, and β = 20°, use the Law of Since to find the measure of angle α.

$$\frac{\sin\alpha}{20} = \frac{\sin 20^\circ}{14} \Rightarrow \sin\alpha = \frac{20\sin 20^\circ}{14}$$

$$\alpha = \sin^{-1}\left(\frac{20\sin 20^\circ}{14}\right) \approx 29.25^\circ$$

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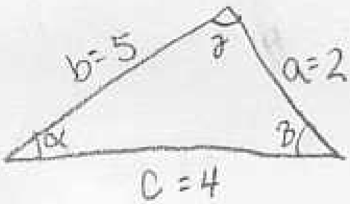
2. If a triangle (with the usual labeling) has measurements a = 2, b = 5, and c = 4, use the Law of Cosines to find the measure of angle γ.



$a^2 = b^2 + c^2 - 2bc\cos\alpha$
$b^2 = a^2 + c^2 - 2ac\cos\beta$ ← Law of cosines
$c^2 = a^2 + b^2 - 2ab\cos\gamma$

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

$$\cos\gamma = \frac{a^2 + b^2 - c^2}{2ab} = \frac{(2)^2 + (5)^2 - (4)^2}{2(2)(5)} = \frac{13}{20}$$

$$49.45 = \gamma = \cos^{-1}\left[13/20\right]$$ ← calculator

$$\gamma = 49^\circ$$

Great!