Quiz 9 Practice Test

1. Solve a triangle with $a = 23, b = 16, m\angle B = 25^\circ$ (round angles and side measures to the whole number)

2. Given x, y are angles in the first quadrant, $6\sec^2 x - 7\sec x - 5 = 0$ and $\tan^2 y = 3$. If $\vec{u} = \cos x\vec{i} + \sin x\vec{j}$ and $\vec{v} = \cos y\vec{i} + \cos 2y\vec{j}$
Find $\vec{u} \cdot \vec{v}$ (exact value)

3. If $\|\vec{w}\| = 4$ and the directional angle of the vector $\vec{w}$ is $\frac{7\pi}{12}$. Write the component form of vector $\vec{w}$ (exact value)

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4. Consider $\vec{w} = \alpha\vec{u} + \beta\vec{v}$, where vector $\vec{u}$ and $\vec{v}$ are from question 2 and vector $\vec{w}$ is from question 3. Find (α, β) (exact value)

5. A tree is on a hillside of slope 13° (from horizontal). If the tree is 100 feet tall, what would be the angle of elevation at the top of the tree for an observer 50 feet downhill from where the tree is?(round to whole degree)

6. In a camp site 3 tents(A, B and C) set up in the following fashion: tent A is 50 yards away from tent B and 20 yards away from tent C. From Tent A, Tent C is in the direction with bearing $N53^\circ E$ and from Tent B, Tent C is the direction with bearing $S75^\circ W$. If the location of the campfire is equidistant from all 3 tents, how far away is the campfire from each tent?(round to the tenth yard)