

The majority of the credit you receive will be based on the completeness and the clarity of your responses. Show your work, and avoid saying things that are untrue, ambiguous, or nonsensical. This quiz has 6 questions, for a total of 60 points.

(10 points) 1. Find the exact value of each expression:

1. $\tan(\sin^{-1} \frac{5}{13})$
2. $\csc(\cos^{-1} \frac{4}{5})$
3. $\sin 25^\circ \cos 35^\circ + \sin 35^\circ \cos 25^\circ$

(10 points) 2. GRAPH the equation $y = \sin^{-1}(\frac{1}{4}(x - 2) + \frac{\pi}{2})$. Also find its inverse function AND any restrictions on x and y .

(10 points) 3. Prove the following identity: $\frac{\cos(x - \frac{\pi}{4})}{\cos x \sin \frac{\pi}{4}} = \tan x + 1$

(10 points) 4. Use any addition and subtraction identities to verify the following: $\tan(\frac{\pi}{2} - x) = \cot x$

(10 points) 5. Find suitable restrictions such that the following equation is true: $\tan^{-1}(\tan(3x + \frac{1}{2})) = 3x + \frac{1}{2}$

(10 points) 6. Find the exact answer of the following:

1. $\tan 105^\circ$.
2. $\csc^{-1} \sqrt{2}$