Quiz 1: Version A

NO CALCULATORS. Show your reasoning. Use standard notation correctly.

1. Consider the right triangle pictured. Figure is not drawn to scale.

(a) Find \( b \). Give an exact value, simplified.

\[
\begin{align*}
\frac{b^2}{b^2} + \frac{4^2}{4^2} &= \frac{10^2}{10^2} \\
\frac{b^2}{b^2} &= 100 - 16 \\
\frac{b^2}{b^2} &= 84
\end{align*}
\]

\( b = \frac{4\sqrt{84}}{\sqrt{4(21)}} \)

\( b = \frac{4}{2\sqrt{21}} = \frac{2\sqrt{21}}{21} \)

(b) Evaluate each of the following. Give exact values, simplified. You need not rationalize denominators.

i. \( \sin \theta = \frac{4}{10} = \frac{2}{5} \)

ii. \( \cos \theta = \frac{2\sqrt{21}}{10} = \frac{\sqrt{21}}{5} \)

iii. \( \tan \theta = \frac{4}{2\sqrt{21}} = \frac{2}{\sqrt{21}} \)

iv. \( \sec \theta = \frac{5}{\sqrt{21}} \)

v. \( \csc \theta = \frac{5}{2} \)

vi. \( \cot \theta = \frac{\sqrt{21}}{2} \)
Quiz 1: Version B

NO CALCULATORS. Show your reasoning. Use standard notation correctly.

1. Consider the right triangle pictured. Figure is not drawn to scale.

(a) Find \( b \). Give an exact value, simplified.
\[
b^2 + 5^2 = 10^2
\]
\[
b^2 = 100 - 25
\]
\[
b^2 = 75
\]
\[
b = \sqrt{75} = 5\sqrt{3}
\]

(b) Evaluate each of the following. Give exact values, simplified. You need not rationalize denominators.

i. \( \sin \theta = \frac{5}{10} = \frac{1}{2} \)

ii. \( \cos \theta = \frac{5\sqrt{3}}{10} = \frac{\sqrt{3}}{2} \)

iii. \( \tan \theta = \frac{5}{5\sqrt{3}} = \frac{1}{\sqrt{3}} \)

iv. \( \sec \theta = \frac{2}{\sqrt{3}} \)

v. \( \csc \theta = \frac{2}{1} = 2 \)

vi. \( \cot \theta = \frac{\sqrt{3}}{1} = \sqrt{3} \)