

Math 181 Honors Quiz 10 Version A

1. Solve the inequality $x < 1 + \frac{1}{x}$.

2. A blue painted aluminum ladder 15 feet long leans against a vertical wall. If the bottom end of the ladder is pulled away from the wall at a rate of 1 foot per second, at what rate does the top of the ladder slip down the wall when the bottom of the ladder is 5 feet from the wall.

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3. Compute the derivative $\frac{d}{dx} \arctan\left(\frac{x}{2 + \sin x}\right)$.

4. A crate open at the top has vertical sides, a square bottom, and a volume of 4 cubic meters. If the crate has the least possible surface area, find its dimensions.