

Honors Math 182 Quiz 4 Version A

1. Find the integral $\int_1^2 3x^2 dx$.

2. Suppose a window has the shape of a rectangle with an equilateral triangle attached at the top. Find the dimensions that allow the maximum amount of light to enter, provided that the perimeter of the window is 12 feet.

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3. Find the integral $\int_0^{\pi/2} \sin x \, dx$.

4. Use estimates involving areas to show $\lim_{x \rightarrow \infty} \frac{\ln x}{x} = 0$. Do not use L'Hôpital's rule.