Name: _____

Quiz 22

MATH 200
November 14, 2024

1. (6 points) $\displaystyle\int \frac{4x^2 - x}{x}\, dx =$

2. (7 points) A rocket lifting off from the surface of the moon has a constant acceleration of 5 meters per second per second. How high is the rocket 10 seconds after liftoff?
(You may assume that its height and velocity are both zero at the instant of liftoff.)

3. (7 points) The graph of a function $f(x)$ passes through the point $(2, 5)$, and the tangent line to the graph at any point $\big(x, f(x)\big)$ has slope $m = 3x^2 + 4x + 1$. Find the function $f(x)$.

Name: _____

Quiz 22

MATH 200
November 14, 2024

1. (6 points) $\displaystyle\int \frac{x^2 - 9x}{x^2}\,dx =$

2. (7 points) The graph of a function $f(x)$ passes through the point $(2, 5)$, and the tangent line to the graph at any point $\big(x, f(x)\big)$ has slope $m = 4x^3 + 2x + 1$. Find the function $f(x)$.

3. (7 points) A rocket lifting off from the surface of the moon has a constant acceleration of 4 meters per second per second. How high is the rocket 10 seconds after liftoff?
(You may assume that its height and velocity are both zero at the instant of liftoff.)