Name:

Quiz 5

You must show all of your work for full credit.

Problem 1 (5 points)**.** Find the slope of the tangent line to the curve $x^2y^3 = 8$ at the point $(-1, 2)$.

Problem 2 (5 points)**.** Calculate $\displaystyle\int \frac{6t^3 + 4t}{2t}\, dt$.

Problem 3 (5 points)**.** Calculate $\int (e^{u/2} + 4u)\, du$.

Problem 4 (5 points)**.** The marginal profit of a small fast-food stand in thousands of dollars is given by

$$P'(x) = \sqrt{x} + \frac{1}{2}$$

where x the the sale volume in thousands of hamburgers. The "profit" is $-\$1000$ when no hamburgers are sold. Find the profit function.