

No graphing calculators are allowed on this quiz. Please read each question carefully, follow directions and clearly mark your solutions. **Show your work for full credit.**

1. Verify that $F(x) = \ln(2x)$ is an antiderivative of $f(x) = \frac{1}{x}$.

2. Find the integrals

(a) $\int 1 + x^2 \, dx$

(b) $\int \frac{3}{x^5} \, dx$

(c) $\int e^{2t} \, dt$

3. (Bonus Question, +2pts) Let's be honest, designing Joanna's bakery's walk-in fridge wasn't a successful job. They ran out of space in their current fridge and contracted Miami-Dade Cooling & co. to keep their products refrigerated. They estimate that the marginal cost of their sourdough bread will change to $C'(x) = 2 + \sqrt{x}$. Can you find the cost function, $C(x)$, if you know that $C(0) = 30$?