

1. For each $f(x)$, find an antiderivative $F(x)$
 - (a) $f(x) = 3x^2 + 2x$
 - (b) $f(x) = x^3 + 1$
 - (c) $f(x) = 2e^{2x}$
 - (d) $f(x) = \cos(x) + \sin(x) + 4x + e^x$
2. Verify that $F(x) = x \ln(x) - x$ is an antiderivative of $f(x) = \ln(x)$
3. Verify that $F(x) = -\ln(\cos(x))$ is an antiderivative of $f(x) = \tan(x)$
4. Verify that $F(x) = \frac{2}{5}(x-1)^{5/2} + \frac{2}{3}(x-1)^{3/2}$ is an antiderivative of $f(x) = x\sqrt{x-1}$