Solutions to Quiz 10

MATH 139-01 and -02
Thursday, October 9, 2003

Be sure to show your work. Unsupported answers receive no credit.

Compute the derivative of each function.

1. \( f(x) = e^x \)
   Solution: \( f'(x) = e^x \).

2. \( f(x) = \frac{1}{x} \)
   Solution: \( f(x) = x^{-1} \), so \( f'(x) = -x^{-2} \).

3. \( g(t) = \ln(t^2 - 3) \)
   Solution: \( g'(t) = \frac{1}{t^2 - 3} (2t) = \frac{2t}{t^2 - 3} \).

4. \( h(s) = (5s^3 + 4s - 2)^{4/5} \)
   Solution: \( h'(s) = \frac{4}{5} (5s^3 + 4s - 2)^{-1/5} (15s^2 + 4) \).

5. \( x(t) = e^{t^2 + 3t} \)
   Solution: \( x'(t) = e^{t^2 + 3t} (2t + 3) \).