

# Quiz 6A, Business Calculus

Spring 2017 - Dr. Graham-Squire

Name: \_\_\_\_\_

1. (3 points) Calculate the derivative,  $f'(x)$ , for the given function. You should also simplify your answer (either before or after you take the derivative).

$$f(x) = \ln \left( \frac{x^3}{\sqrt{x-4}} \right)^5$$

2. (2 points) Calculate the antiderivative (it may help to modify the expression first):

$$\int (e^x + x(x-9)) dx$$

3. (5 points) The length of wombats (in centimeters) raised in captivity is modeled by the function

$$L(t) = 200(1 - 0.947e^{-0.17t})$$

where  $t$  is days after birth. Make sure to show your work for each of the following questions. Round all answers to the nearest 0.1.

- (a) What is the length of a 2 day old wombat?
- (b) How long does it take for a wombat to grow to 100 cm?
- (c) How fast is the wombat growing when it is 5 days old?