\_\_\_\_\_/ 25

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

## Instructor: Bueler | Jurkowski | Maxwell

There are 25 points possible on this quiz. No aids (book, calculator, etc.) are permitted. Show all work for full credit.

**1. [15 points]** Compute the derivatives of the following functions. You need not simplify your answers.

**a.** 
$$f(x) = e^x - 6 + x^{\frac{5}{2}}$$

**b**. 
$$g(w) = \frac{\pi}{w^2} - 3w$$

**c**. 
$$h(x) = \frac{1}{2 - x^2}$$

**d**. 
$$R(s) = (s^3 - 1)e^s$$

**e.** 
$$f(x) = \frac{2 - x^3}{3 + x}$$

## Math 251: Quiz 4

**2.** [6 points] The temperature in °C of coffee in a cup is given by

$$T(t) = 20 + \frac{50}{e^t}.$$

where *t* is measured in hours.

- **a**. What is the temperature of the coffee at time t = 0? Include units in your answer.
- **b**. What is the rate of change of temperature of the coffee at time t = 0? Include units in your answer.

**3.** [4 points] Find the equation of the tangent line to the graph of  $y = \sqrt{3x}$  at x = 2.