QUIZ 4 - MATH 112 YOUR NAME:

Read each problem **very carefully** before starting to solve it. Each problem is worth 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. Use, first, the product and, then, the quotient rule to find the derivative of the function

$$f(x) = (x^7 + 1) \cdot \frac{x^3 - 2}{x + 1}.$$

2. Suppose that, after t hours, a car is at a distance $s(t) = 60t + \frac{100}{t+3}$ miles from its starting point. Find the velocity after 2 hours.

- 3. An object is shot upward at time t = 0. Suppose that its height at time t (in seconds) into its motion is given by $h(t) = -5t^2 + 30t + 35$ in meters.
 - (a) Find the object's initial height.

(b) Find the object's initial velocity.

(c) Find the maximum height that the object will attain during its motion.

(d) Find the acceleration of the object at time t.

(e) Find the time t when the object will hit the ground.