

**Math 151**  
**Quiz 3**  
**Spring 2006**

Show all work in a neat and organized fashion. Clearly indicate your answers.  
20 points possible.

1. (4 pts.) Submit your GSP take-home problem.
2. (8 pts.) Differentiate. Simplify as much as possible.

(a)

$$f(x) = \frac{x^3 + 2x - 5}{\sqrt{x}}$$

(b)

$$G(s) = (s^3 + 3)(s^7 + 2s)$$

3. (3 pts.) Suppose  $h(x) = x^2g(x)$ , where  $g(7) = 9$  and  $g'(7) = 11$ . Find  $h'(7)$ .

4. (5 pts.) A particle moves according to a law of motion  $s = f(t)$ ,  $t \geq 0$ , where  $t$  is measured in seconds and  $s$  in feet.

$$f(t) = t^3 - 15t^2 + 48t$$

(a) Find the velocity at time  $t$ .

(b) What is the velocity after 3 seconds?

(c) When is the particle at rest?

(d) When is the particle moving in the positive direction?