

## Math 241 Worksheet 9 (two-sided)

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

Section (circle one):    **2**    **3**

1. Find the critical points of  $f(x) = x^{2/5}(x - 7)$ .

2. Using the technique from the Extreme Value Theorem for a continuous function on a closed finite interval (compare function values at critical points and end points), find the absolute extrema for the function  $f(x) = x^2 - 4x$  on domain  $0 \leq x \leq 3$ .

**3.** Prove that the equation  $x^7 + 2x - 5 = 0$  cannot have more than one solution. (Hint: Let  $f(x) = x^7 + 2x - 5$ , and use Rolle's Theorem.)

**4.** Find the intervals of increasing/decreasing and local extrema of the function  $f(x) = x^3 - 6x^2$ . (Find the critical points and then make a 1<sup>st</sup> derivative diagram.)