

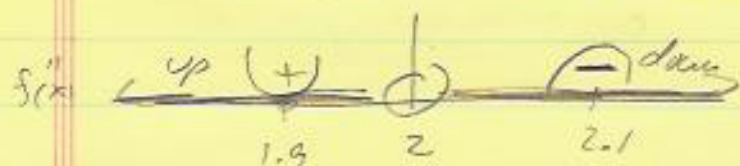
Solving to Math 165 Exam II(a) Spring 2010

9. $f(x) = -x^3 + 6x^2 - 10$

$f'(x) = -3x^2 + 12x$

$f''(x) = -6x + 12$

$= 6(2-x) = 0 \quad x = 2$



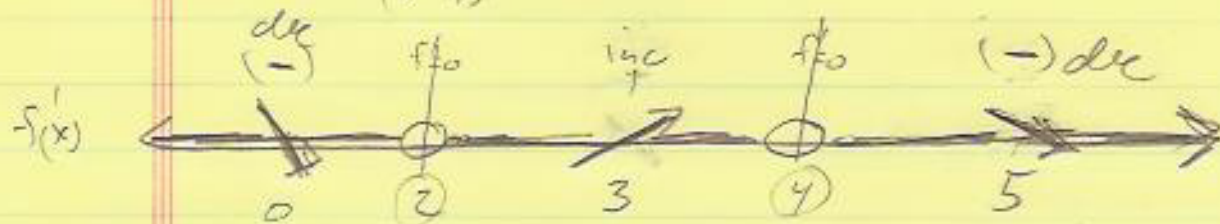
$f''(1.9) = 6(2-1.9) = (+)$

$f''(2.1) = 6(2-2.1) = (-)$

$f(x)$ is Concave Up for x in $(-\infty, 2)$

$f(x)$ is Concave Down for x in $(2, +\infty)$

10. $f'(x) = \frac{(2-x)}{(x-4)} \Rightarrow x_c = (2), (4)$



$f'(0) = \frac{2-0}{0-4} = \frac{+}{-} = (-) \downarrow$ $f'(3) = \frac{2-3}{3-4} = \frac{-}{-} = (+) \uparrow$

$f'(5) = \frac{2-5}{5-4} = \frac{-}{+} = (-) \downarrow$

$f(x)$ is decreasing for x in $(-\infty, 2)$ and x in $(4, +\infty)$

$f(x)$ is increasing for x in $(2, 4)$