

AP:

Homework
9/18 – 9/22

due: Tuesday: read pp. 119-122

1. pg. 124 / #15, 17, 19, 21, 24, 29
2. Find y' : a. $y = x^2(x^3 - 1)$ b. $y = \frac{5}{x^4}$ c. $y = x^2(x + 5 + \frac{1}{x})$ d. $y = \frac{12}{x} - \frac{4}{x^3} + \frac{1}{x^4}$
3. If $f(x) = \frac{x}{1-x}$, find $f'(x)$.
4. If $y = \frac{1-x}{x-1}$, find $\frac{dy}{dx}$.

Wednesday: read p. 122-123

1. pg. 124 / #35, 36 (find y'')
2. Find $\frac{d^2y}{dx^2}$: a. $y = (3x - 1)(2x^2 + 5)$ b. $y = \frac{3x+1}{5x-2}$
3. If $y = x^4 - 7x^3 + 2x^2 + 9$, find $D_x^3 y$.
4. If $f(x) = \frac{-2}{x^2}$, find $f^{(4)}(x)$.

Monday: read pp. 104, 112-113

1. Find $f'(1)$: a. $f(x) = \begin{cases} 2, & x < 1 \\ 2x, & x \geq 1 \end{cases}$ b. $f(x) = \begin{cases} x, & x \leq 1 \\ \frac{1}{x}, & x > 1 \end{cases}$ c. $f(x) = \begin{cases} x^2 + 2, & x \leq 1 \\ 2x, & x > 1 \end{cases}$
2. If $f(x) = 3 + |x - 2|$, find $f'(2)$.
3. pg. 108 / #44
4. Let $f(x)$ be the function defined by $f(x) = \begin{cases} |x - 1| + 2, & x < 1 \\ ax^2 + bx, & x \geq 1 \end{cases}$, a, b are constants.
 - a. If $a = 2$ and $b = 3$, is f continuous for all x ? Justify your answer.
 - b. Describe all values of a and b for which f is everywhere continuous.
 - c. For what values of a and b is f both continuous and differentiable?

on: Tuesday: test