

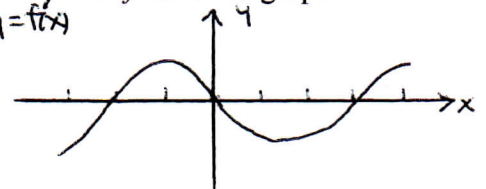
AP:

Homework

11/6–11/10

due: Wednesday: read pp. 205-207

1. Determine all relative extrema. Find on what intervals the functions are increasing and on what intervals the functions are decreasing:
 - a. $f(x) = 2x^4 - 4x^2 + 1$
 - b. $f(x) = x^{2/3} - x$
2. pg. 215 / #24
3. If $f'(x) = x^2 + x - 12$, then f is decreasing on what interval(s)?
4. Let f be a function whose domain is $[-3, 4]$ and let the derivative of f have the graph shown. On what interval(s) is the graph of f increasing? $y = f'(x)$



Thursday: read pp. 207-208

1. Find all points of inflection and the concavity of the graph of:
 - a. $y = x^3 - 6x^2 + 9x + 1$
 - b. $y = -x^4 + 4x^3 - 4x + 1$
2. How many points of inflection does the graph of $y = -x^5 - 2x^3 + 10x - 1$ have?
3. If the graph of $y = x^3 + ax^2 + bx - 4$ has a point of inflection at $(1, -6)$, what is the value of b ?
4. For what values of x is the graph of $y = 3x - x^3$ concave down?
5. pg. 218 / #55, 57

Monday: read pp. 211-212

1. Use the second derivative test to find all local extrema:
 - a. $y = 4x^2 + 8x + 1$
 - b. $y = x^4 - 2x^2$
 - c. $y = x^4 + 3$
2. The derivative of the function $y = f(x)$ is $f'(x) = (x - 1)^2(x - 2)$. At what values of x does the graph of f have a local maximum or minimum?
3. Find the maximum value of $f(x) = x^3 - 3x^2 - 9x + 2$. Justify your answer.
4. At what value of x does the derivative of $f(x) = x^4 + 4x^3$ attain its maximum? Justify your answer.
5. pg. 218 / #56