

CALCULUS I – Worksheet #37

Find **and label** the intervals where the curve is increasing and decreasing, all critical points, and sketch the curve on graph paper. Make sure to show a chart.

1. $f(x) = 3x^2 - 3x + 2$

2. $f(x) = x^3 - x^2 - x$

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

4. $f(x) = \frac{x^4}{4} - x^3 + x^2$

5. $f(x) = \frac{x-2}{x+2}$

6. Find a and b so that $f(x) = x^3 + ax^2 + b$ will have a critical point at $(2,3)$.

7. Give the total number of maximum and minimum points of the function whose derivative is given by $f'(x) = x(x-3)^2(x+1)^4$.

8. Find the volume of the solid formed when the area bounded by $x = 3y - y^2$ and $x = 0$ is revolved about the x -axis.
