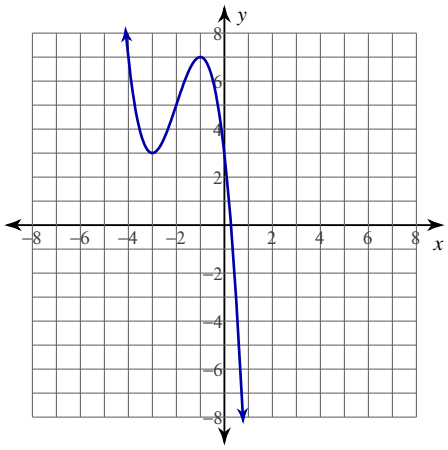
 Name_____

Absolute Extrema

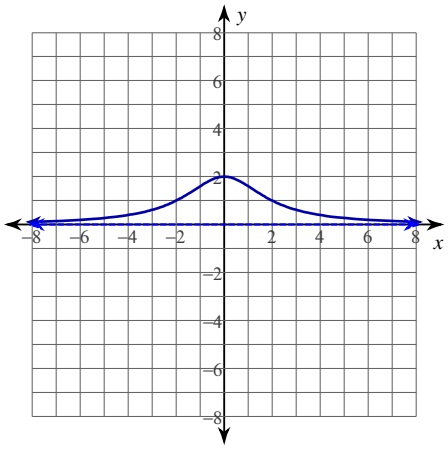
Date_____ Period____

For each problem, find all points of absolute minima and maxima on the given closed interval.

1) $y = -x^3 - 6x^2 - 9x + 3;\ \ [-3, -1]$



2) $y = \dfrac{8}{x^2 + 4};\ \ [0, 5]$



3) $y = x^3 + 6x^2 + 9x + 3;\ \ [-4, 0]$

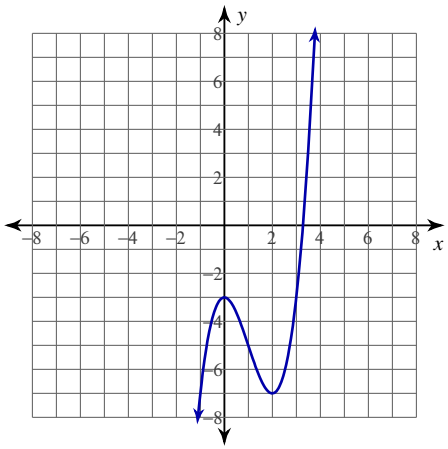
4) $y = x^4 - 3x^2 + 4;\ \ [-1, 1]$

5) $y = \dfrac{x^2}{3x - 6};\ \ [3, 6]$

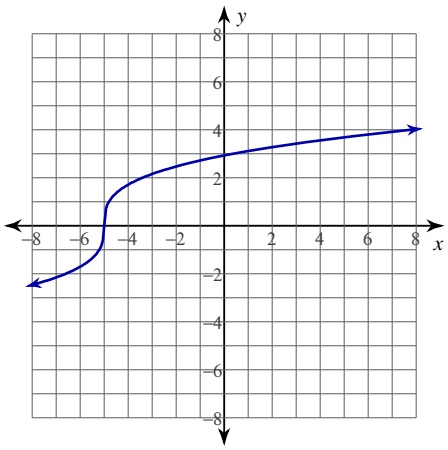
6) $y = (x + 2)^{\frac{2}{3}};\ \ [-4, -2]$

For each problem, find all points of absolute minima and maxima on the given interval.

7) $y = x^3 - 3x^2 - 3; \quad (0, 3)$



8) $y = (5x + 25)^{\frac{1}{3}}; \quad [-2, 2]$



9) $y = x^3 - 3x^2 + 6; \quad [0, \infty)$

10) $y = x^4 - 2x^2 - 3; \quad (0, \infty)$

11) $y = \dfrac{4}{x^2 + 2}; \quad (-5, -2]$

12) $y = -\dfrac{1}{6}(x + 1)^{\frac{7}{3}} + \dfrac{14}{3}(x + 1)^{\frac{1}{3}}; \quad (-5, 0)$