

In-Class Problems 9 for Wednesday, February 21

These problems are from [Pre-Class Problems 9](#).

1. Determine if the graph of the following equations is symmetric with respect to the x -axis, y -axis, origin, or none of these.

a. $y = x^4 - |x| + 3$ b. $y^2 = 4x^3 - 7x$ c. $y = -6x^5$

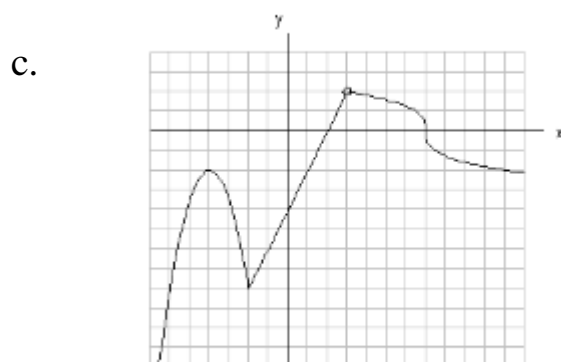
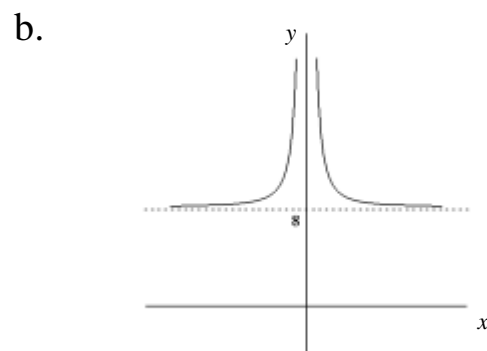
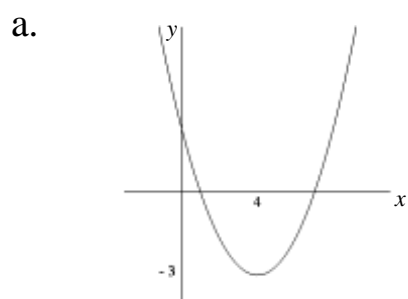
2. Determine if the following functions are even, odd, or neither.

a. $f(x) = x^6 + 8x^2 - 5$ b. $g(x) = \frac{4x^3}{x^2 - 16}$

3. If $h(x) = \begin{cases} x^2 + 6x + 9, & x \leq -5 \\ \sqrt[3]{4x + 9}, & -5 < x \leq -2 \\ 3x^2 + \frac{11}{2}x, & x > -2 \end{cases}$, then find

a. $h(-5)$ b. $h(-3)$ c. $h(-1)$

4. Determine the interval(s) where the following functions are increasing and decreasing. Determine the location and the value of any relative (local) maximum and minimum of the functions.



5. If $f(x) = \sqrt{2x + 13}$ and $g(x) = 3x^2 - 5x - 27$, then find

a. $(f + g)(-2)$ b. $(f - g)(-2)$ c. $(fg)(-2)$

d. $\left(\frac{f}{g}\right)(-2)$

6. If $f(x) = 9 - x^2$ and $g(x) = 4x - 7$, then find

a. $(f + g)(x)$ b. $(f - g)(x)$ c. $(fg)(x)$

d. $\left(\frac{f}{g}\right)(x)$