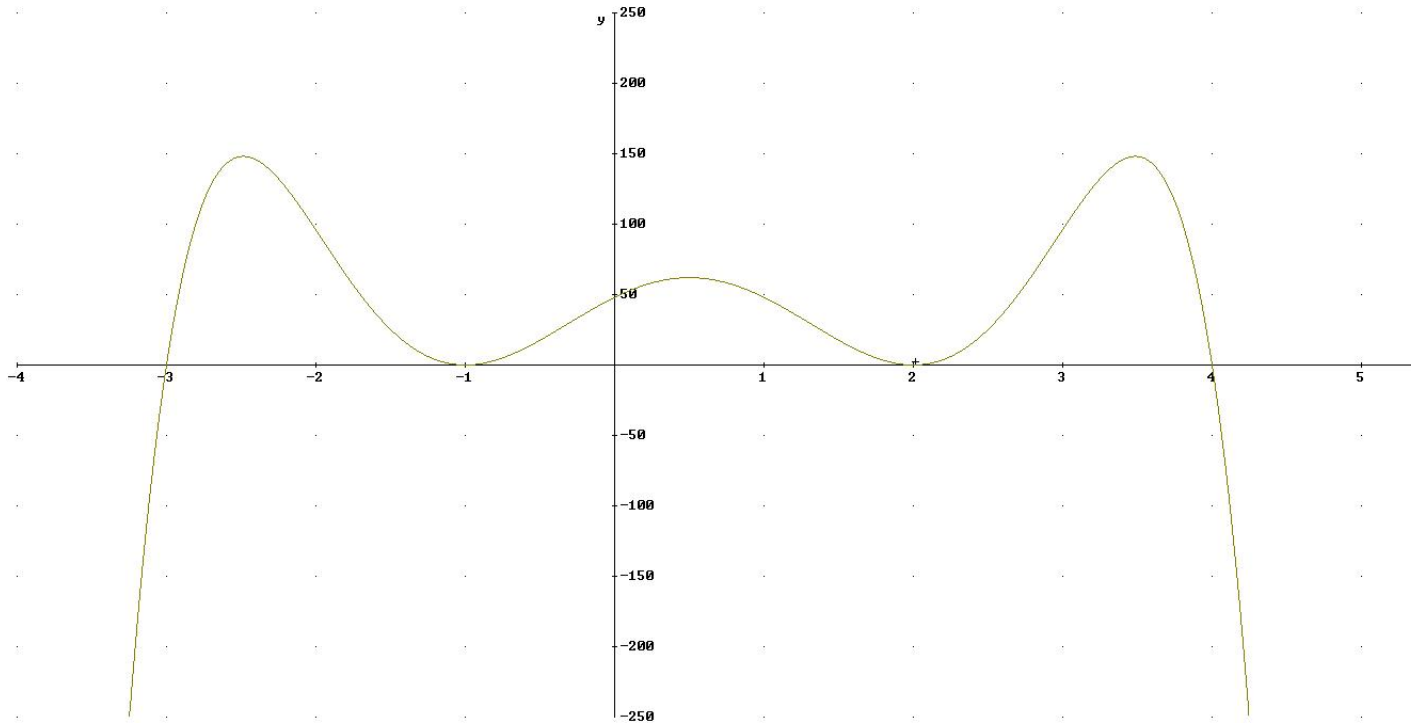


3. Given below is the graph of f .



(a) (0.5 pt) Is the degree of f even or odd?

(b) (0.5 pt) Is the leading coefficient of f positive or negative?

(c) (0.5 pt) Determine the interval(s) where $f(x) \geq 0$.

(d) (0.5 pt) Determine the interval(s) where $f(x) < 0$.

(e) (1 pt) List the real zeros of f AND state whether each zero has even or odd multiplicity.

4. (2 pts) Solve: $6(3x - 8)^3 = 48$

5. (2 pts) Solve: $45x^3 + 24x^2 - 48x = 0$

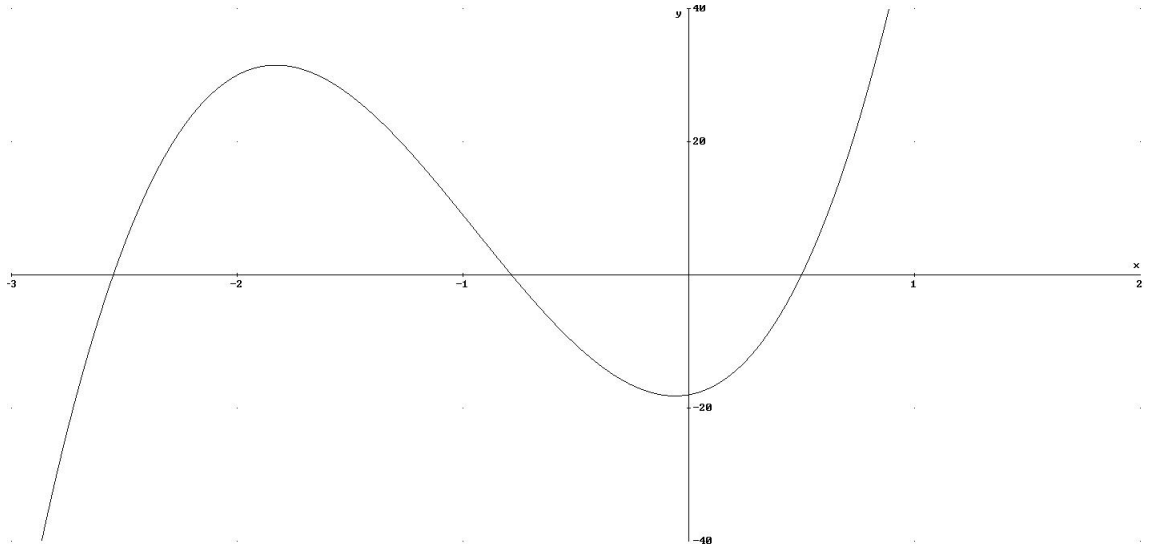
6. (2 pts) Solve: $24x^3 - 28x^2 - 30x + 35 = 0$

7. (1 pt) Use synthetic division to divide

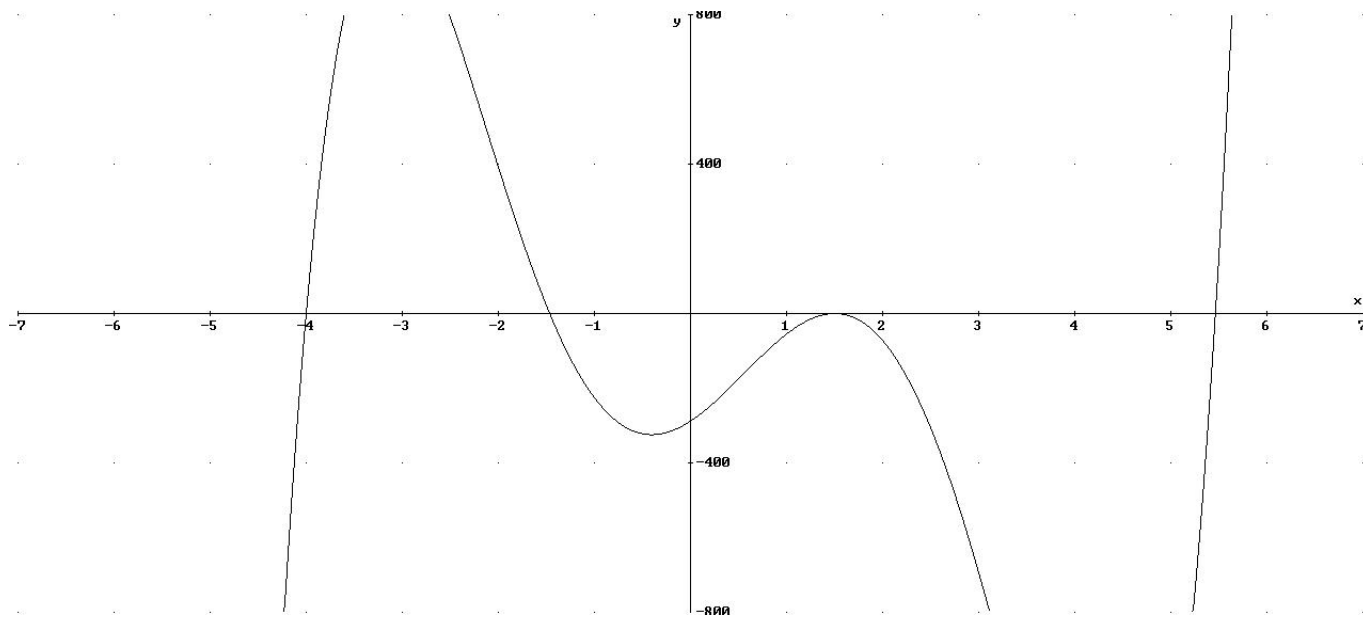
$$P(x) = 3x^5 - 4x^3 + 9x^2 + 2x - 5 \quad \text{by} \quad x + 2.$$

Identify the quotient and remainder. Be specific.

8. (3 pts) Find all zeros of $f(x) = 18x^3 + 51x^2 + 6x - 18$. You must show all work.



9. Consider $P(x) = 4x^5 - 12x^4 - 87x^3 + 160x^2 + 168x - 288$ whose graph is given below.



(a) (1 pt) Show that $x = \frac{3}{2}$ is a zero.

Problem continued on the next page.

(b) (4 pts) Find all other zeros of P . You must show all work. (Show algebraically that they are zeros).