

Determine the degree, leading term, constant coefficient, and end behavior of the following polynomials.

1. $f(x) = 4x^2 + 14x^3 - 6x^6 - 4x - 1$

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

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

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

5. $Q(x) = x(x - 5)^5(x - 7)^3(x + 10)(x + 6)^2$

6. $f(x) = (x + 5)^2(2x - 5)(x^2 + 5x + 6)(3 - x)$

Sketch a graph of the polynomials below. Label all intercepts on your graph. *You should not use your calculator on these problems.* You should sketch these as we did in class [i.e. by noting any important properties of the graphs (end behavior, etc.)].

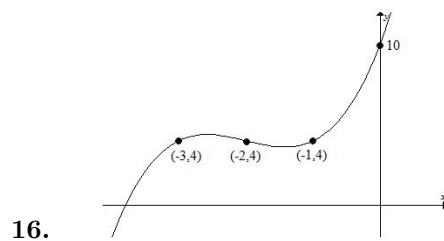
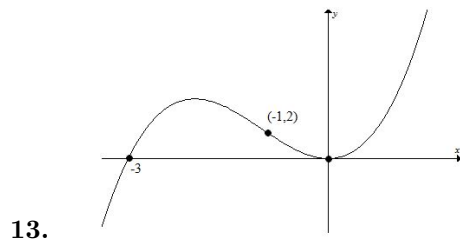
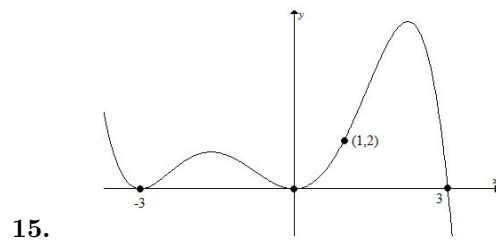
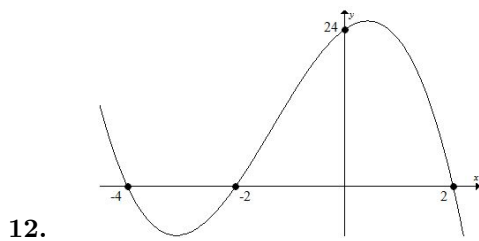
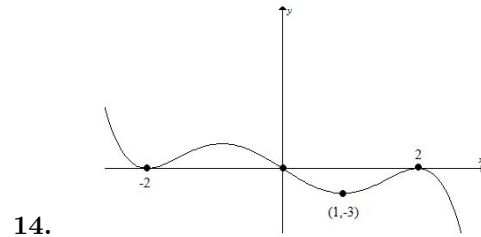
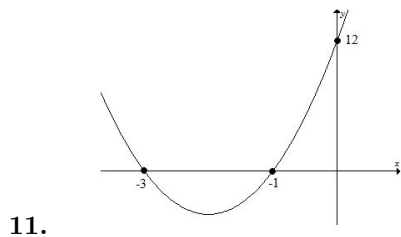
7. $y = 3(x - 3)(x - 1)(x + 2)$

8. $f(x) = -(x + 2)^2(x - 1)(x - 4)$

9. $g(x) = -x^3 + x^2 + 6x$

10. $y = x^7 - 8x^5 + 16x^3$

Determine a possible formula for the polynomials shown below.



17. Find the equation of the function $f(x)$ given the following table of values and that $f(x)$ is a degree 3 polynomial.

x	0	1	2	3	4	5
$f(x)$	-12	0	0	0	12	48