

1. (2ea) Determine the degree and leading coefficient for the following polynomials.

(a) $f(x) = 4x^2 + 14x^3 - 5x^6 - 4x - 1$

Degree: _____

Leading coefficient: _____

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

Degree: _____

Leading coefficient: _____

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

Degree: _____

Leading coefficient: _____

2. (4) Determine a polynomial *function*, $f(x)$, of lowest degree which has leading coefficient 5, has a zero of multiplicity 3 at $x = 4$ and whose graph also has x -intercepts at $(-6, 0)$ and $(2, 0)$.

3. (4) Consider the polynomial $p(x) = -2(x - 4)^3(3x + 3)(2x - 10)(x + 1)^5$. Determine the zeros of $p(x)$ and their multiplicities.

4. (6) Determine a possible equation for the polynomial function graphed below.

