

Polynomial Functions

A "zero" is another word for "x-intercept"

Question #1

Answer the following for each of the given polynomial functions:

(a) $f(x) = 2x^5 - 3x^3 - 5$

The degree of the polynomial is _____

As $x \rightarrow -\infty$, $f(x) \rightarrow$ _____

As $x \rightarrow \infty$, $f(x) \rightarrow$ _____

This function is an even function,
odd function or neither _____

(b) $f(x) = -x^4 - x^2 + 3$

The degree of the polynomial is _____

As $x \rightarrow -\infty$, $f(x) \rightarrow$ _____

As $x \rightarrow \infty$, $f(x) \rightarrow$ _____

This function is an even function,
odd function or neither _____

(c) $f(x) = -7x^3 + x^2 - 8x$

The degree of the polynomial is _____

As $x \rightarrow -\infty$, $f(x) \rightarrow$ _____

As $x \rightarrow \infty$, $f(x) \rightarrow$ _____

This function is an even function,
odd function or neither _____

Question #2

Sketch a graph of a polynomial function that satisfies each set of conditions:

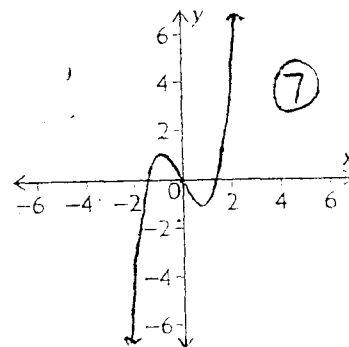
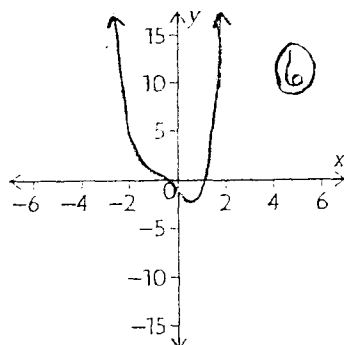
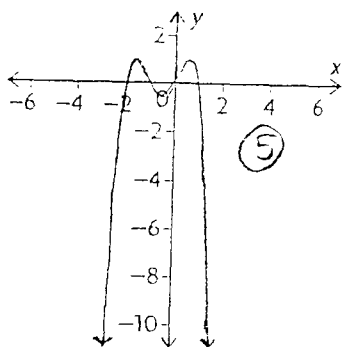
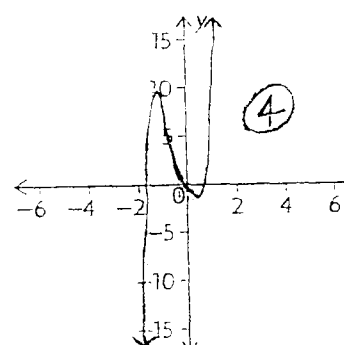
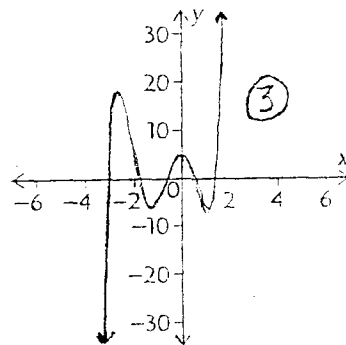
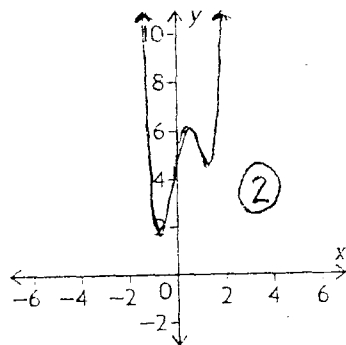
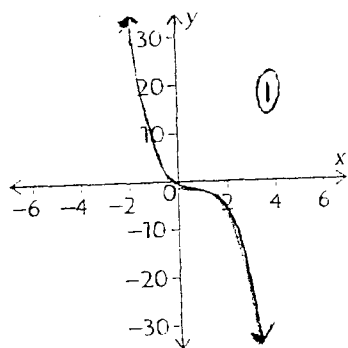
(a) degree of 4, negative leading coefficient, 1 zero, 3 turning points

(b) degree of 5, negative leading coefficient, 3 zeros, 4 turning points

Question # 3

Match up the polynomial functions with an appropriate graph, and then determine the number of zeros for each polynomial function.

	Graph	Number of Zeros
(a) $f(x) = 3x^4 - 4x^3 - 4x^2 + 5x + 5$	_____	_____
(b) $f(x) = 2x^5 + 7x^4 - 3x^3 + 18x^2 + 5$	_____	_____
(c) $f(x) = -x^4 - 2x^3 + x^2 + 2x$	_____	_____
(d) $f(x) = x^3 - 2x$	_____	_____
(e) $f(x) = -2x^3 + 4x^2 - 3x - 1$	_____	_____
(f) $f(x) = x^4 + 2x^3 - 3x - 1$	_____	_____
(g) $f(x) = 5x^5 + 5x^4 - 2x^3 + 4x^2 - 3x$	_____	_____



+ Do Textbook

pg 127-128 # 1, 2

pg 136-137 # 1-8, 10