Intermediate Algebra B LT 6.1 HW #2 Name_____

6.1B – End Behavior of Polynomials

1. Sketch the end behavior of the following polynomials without using a calculator:

a. $y = ax^4 + bx^2 + cx + d$ *where* $a < 0$

d = even

LC: −

b. $y = 2(x+2)(x+7)^3$

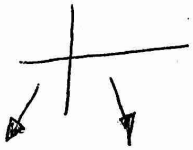
d = even

LC: +

c. $f(x) = -3x^4 + 7x^3 - 3x + 7$

d = even

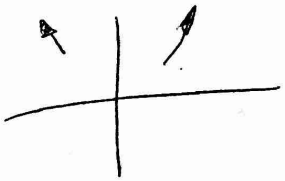
LC: →



d. $y = x(x-1)(x+6)(x-1)$

d = even

LC: +



Without using a graphing calculator, identify the x-intercepts and their multiplicity and then make a sketch of the graph with the proper end behavior.

2. $f(x) = -2(x+3)(x-2)(x-1)$

$x=-3 \quad x=2 \quad x=1$

a. End Behavior (sketch):

p: 3

LC: −1

b. x-intercepts and their multiplicity:

$(-3, 0)$ −1

$(2, 0)$ −1

$(1, 0)$ −1

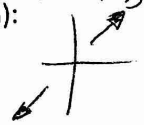
3. $g(x) = x(x+3)^3(x-1)$

$x \quad (x+3)(x+3)(x+3) \quad (x-1)$

a. End Behavior (sketch):

d = odd

LC = +

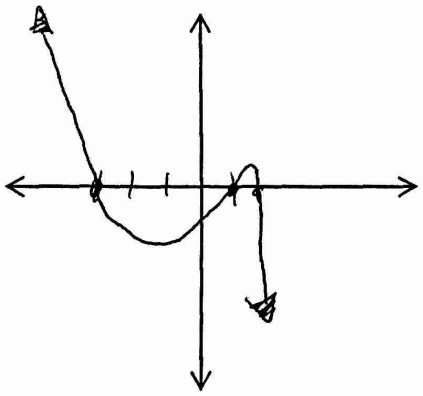


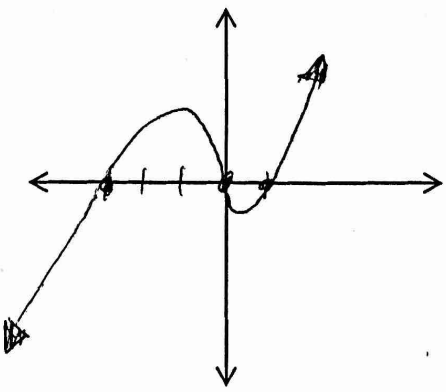
b. x-intercepts and their multiplicity:

$(0, 0)$ −1

$(-3, 0)$ −3

$(1, 0)$ −1





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

a. End Behavior (sketch):

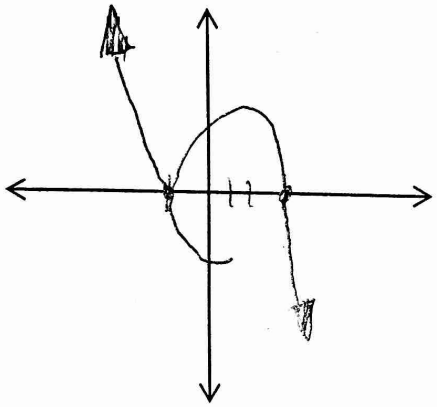
d = odd

LC = −

b. x-intercepts and their multiplicity:

(3, 0) - 3

(-1, 0) - 2



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

a. End Behavior (sketch):

d = even

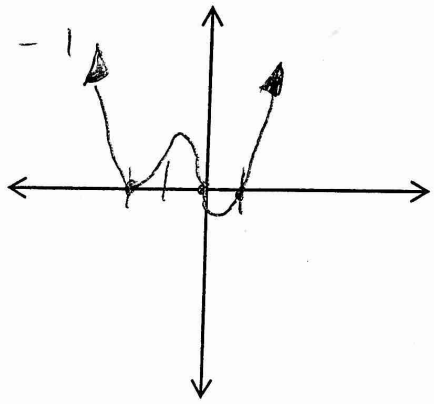
LC = +

b. x-intercepts and their multiplicity:

(0, 0) - 1

(-2, 0) - 2

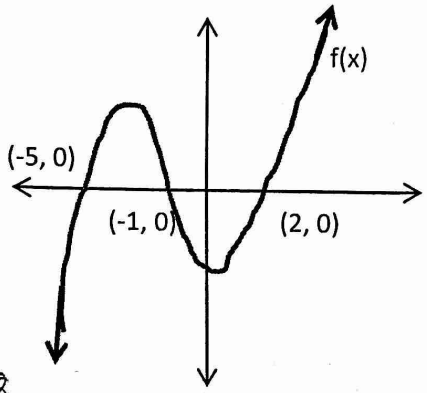
(1, 0) - 1

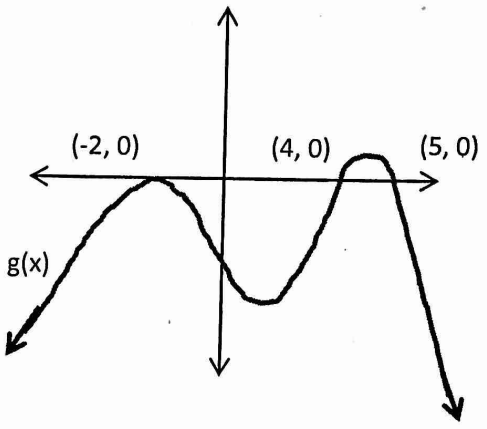


6. Write the equation of a polynomial (in standard form) that could be represented by the following graphs.

f(x) = $x^3 + 4x^2 - 7x - 10$

g(x) = $-x^4 + 5x^3 + 12x^2 - 60x + 16x - 80$





$(x+5)(x+1)(x-2)$

$x^2 + 1 + 5x + 5$

$(x^2 + 6x + 5)(x-2)$

$x^3 - 2x^2 + 6x^2 - 12x + 5x - 10$

$x^3 + 4x^2 - 7x - 10$

$-(x+2)(x+2)(x-4)(x-5)$

$-(x^2 + 4x + 4)(x-4)$

$-(x^3 - 4x^2 + 4x^2 - 16x + 4x - 16)$

$-(x^3 - 12x - 16)(x-5)$

$-(x^4 - 5x^3 - 12x^2 + 60x - 16x + 80)$

$-x^4 + 5x^3 + 12x^2 - 60x + 16x - 80$