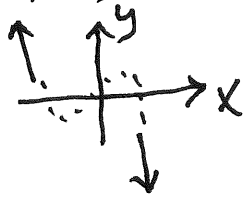
Math 41
Quiz 4
February 26, 2016

name Lucy Bowles

1. Use the Leading Coefficient Test to determine the left and right hand end behavior of the graphs of polynomial functions.

a. $f(x) = -4x^5 - 2x^3 + 4x^2 - 5$

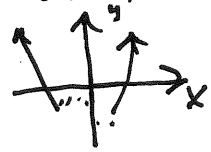
odd degree
leading coefficient < 0
rises left, falls right



as $x \to -\infty$, $f(x) \to \infty$
as $x \to \infty$, $f(x) \to -\infty$

b. $g(x) = 3x^4 - 6x^3 - 2x^2 + 4x - 1$

even degree
leading coefficient > 0
rises left, rises right



as $x \to -\infty$, $f(x) \to \infty$
as $x \to \infty$, $f(x) \to \infty$

2. Find all ***real*** zeros of the function ***by factoring***: $f(x) = x^2 - 2x - 8$

$f(x) = 0$
$x^2 - 2x - 8 = 0$
$(x-4)(x+2) = 0$
$x - 4 = 0 \quad x + 2 = 0$
$x = 4 \quad x = -2$

3. Find all ***real*** zeros of the function ***by factoring***: $f(x) = 2x^3 - x^2 - 10x + 5$

$f(x) = 0$
$2x^3 - x^2 - 10x + 5 = 0$
$x^2(2x-1) - 5(2x-1) = 0$
$(2x-1)(x^2-5) = 0$
$2x - 1 = 0 \quad x^2 - 5 = 0$
$x = 1/2 \quad x = \pm\sqrt{5}$

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NAME Carrie Paper

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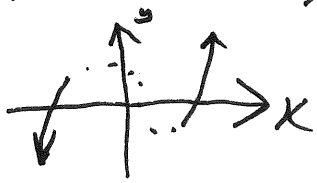
odd degree
leading coefficient > 0
falls left, rises right



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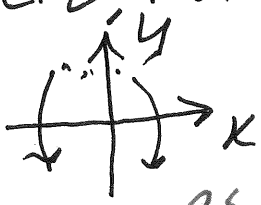

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2. Find all ***real*** zeros of the function ***by factoring***: $f(x) = x^2 + 2x - 8$

$f(x) = 0$
$x^2 + 2x - 8 = 0$
$(x+4)(x-2) = 0$
$x + 4 = 0 \quad x - 2 = 0$
$x = -4 \quad x = 2$

3. Find all ***real*** zeros of the function ***by factoring***: $f(x) = 2x^3 - x^2 - 6x + 3$

$f(x) = 0 \quad 2x^3 - x^2 - 6x + 3 = 0$
$x^2(2x-1) - 3(2x-1) = 0$
$(2x-1)(x^2-3) = 0$
$2x - 1 = 0 \quad x^2 - 3 = 0$
$x = \frac{1}{2} \quad x = \pm\sqrt{3}$