HN Math II!
Unit 3, Day 5 Homework

Name KEY
Date _____ Period _____

Part I. Find all the roots/zeros of the following polynomials.

1. $x^3 + 6x^2 + 10x + 3 = 0$

$x = -3$

-3 | 1 | 6 | 10 | 3
↓ | −3 | −9 | −3
1 | 3 | 1 | 0

$x = \frac{-3 \pm \sqrt{5}}{2}$

Solve: $x^2 + 3x + 1 = 0$

$x = \frac{-3 \pm \sqrt{9-4(1)(1)}}{2}$

2. $x^3 + 6x^2 + 10x + 3 = 0$

Same as #1 (oops!)

3. $f(x) = x^3 - 7x^2 + 16x - 12$

$x = 2$ mult. 2

$x = 3$

4. $g(x) = 3x^4 + 23x^3 + 56x^2 + 52x + 16$

$x = -1$

$x = -2$

$x = -4$

$x = \frac{2}{3}$

5. $x^4 - 5x^3 + 4x^2 + 3x + 9 = 0.$

$x = 3$ mult. 2

$x = \frac{-1 \pm i\sqrt{3}}{2}$

6. $P(x) = x^4 - 6x^3 + 10x^2 + 2x - 15$

$x = -1$

$x = 3$

$x = 2 \pm i$

Part 2:

7. State the degree of #5. 4

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

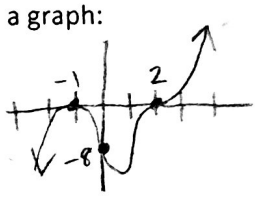
Degree: 7

Zeros and multiplicity: $x = 2$, mult. 3; $x = -1$, mult. 4

End Behavior:

$x \to \infty, y \to \infty$ $x \to -\infty, y \to -\infty$

Sketch a graph:



9. Find the max/mins of #5

min: (-.25, 8.58)

abs min: (3, 0)

max: (1, 12)