Math 3 – 3.4 Hw Wkst: Factoring and R/F Theorems   Name: _____

I. Solve each polynomial by factoring and using other quadratic techniques. Place only your answers in the box provided. Must show work!

1.) $x^4 + x^2 - 72 = 0$	2.) $x^3 + 5x^2 - 4x - 20 = 0$	3.) $x^3 - 27 = 0$
4.) $x^5 - 625x = 0$	5.) $8x^2 - 12x + 2x - 3 = 0$	6.) $2x^5 + 6x^3 - 20x = 0$

II. Prove through synthetic division that remainder left and Remainder Theorem equal.

7.) P (x) = $3x^3 + 2x^2 - 6x$ is divided by (x + 2)   8.) P (x) = $4x^4 - 5x^3 + 2x - 3$ is divided by (x − 3)

Synthetic Division	Remainder Theorem

Synthetic Division	Remainder Theorem

III. Using the given information, find the remaining zeros. Must show work!

9.) $P(x) = 2x^3 - 5x^2 + x + 2$ where $(x - 2)$ and $(2x + 1)$ are factors.	10.) $P(x) = 4x^3 + 13x^2 - 13x - 4$ where $-\frac{1}{4}$ and 1 are zeros.
11.) $P(x) = 5x^3 - 37x^2 + 56x + 48$ where $(x - 4)^2$ are factors.	12.) $P(x) = 5x^4 + 2x^3 - 21x^2 - 8x + 4$ where ± 2 are zeros.
13.) $P(x) = 3x^5 - x^4 - 21x^3 - 11x^2 + 6x$ where $(x + 2)$, $(x + 1)$, $(x - 3)$ and x are factors.	14.) $P(x) = 4x^5 + x^4 - 51x^3 + 36x^2$ where 0 (mo2), -4, and 3 are zeros.