Sec 5-4

Notes on Factoring

- What are <u>all</u> the <u>factors</u> of 24?

24	24	24	24
∧	∧	∧	∧
$4 \cdot 6$	$8 \cdot 3$	$12 \cdot 2$	$24 \cdot 1$

Factors of 24: 1, 2, 3, 4, 6, 8, 12, 24

Greatest Common Factor (GCF)

27 & 18 → GCF (9)

- $3 \times (9)$, 27×1
- 3×6, $2 \times (9)$, 18×1

12 & 16 → GCF (4)

- 3×4, 2×6
- 2×8, 4×4

$$(-4x^2 + 32x + 0) \div (x - 8)\bigstar$$

Factor

8	-4	32	0
	↓	-32	0
	-4	0	R 0

Factor ★: $-4x$

* Look for GCF of # & variable

$-4x^2 + 32x$ Factor It

$-4x(x - 8)$

$2x^3 + 8x + 10$ Factor

$2(x^3 + 4x + 5)$

$-16x^4 - 32x^3 - 20x^2$

$-4x^2(4x^2 + 8x + 5)$

~~$-4x^4(9 + 8$~~

$-1x^2 - 10x$

$-1x(x + 10)$

$24x^5 + 21x^3$

$3x^3(8x^2 + 7)$

$$2x^3 + 8x + 10$$

2 $(x^3 + 4x + 5)$

$$9x^3 + 12x^2 - 18x$$

$$3x(3x^2 + 4x - 6)$$

$$-16x^4 - 32x^3 - 20x^2$$

$$-4x^2(4x^2 + 8x + 5)$$

$$8x + 9x^2$$

$$x(8 + 9x)$$

1.) If 1st term negative, pull out the negative

2.) Pull out GCF of # part

3.) pull out GCF of variable

4.) multiply back