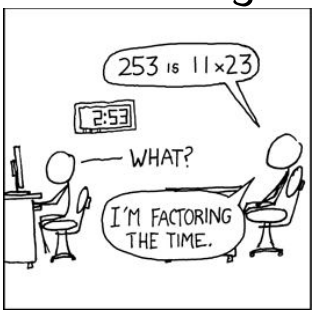
Unit 6 Notes

Factoring

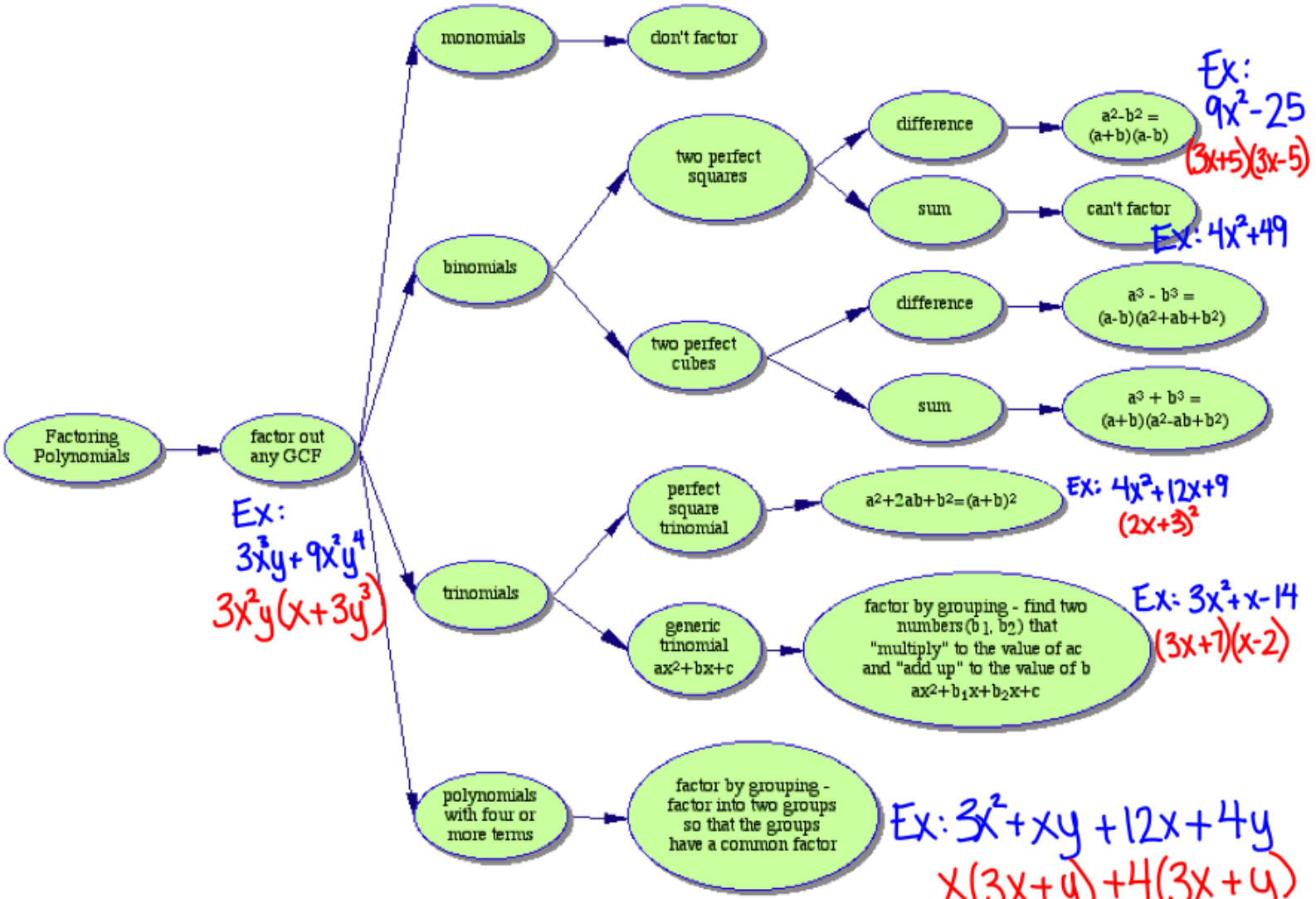


Tentative Schedule

Day	Classwork	Assignment
Mon. 11/24 (all)	Test #5	Video #6.1 with Notes: Factoring by GCF
Tues. 11/25 (S) Mon. 12/1 (R)	1 – 17	Video #6.2 with Notes: Factoring Trinomials
Tues. 12/2 (all)	18 – 37	Video #6.3 with Notes: Factoring Trinomials by Grouping
Wed. 12/3 (S) Thurs. 12/4 (R)	38 – 58	Video #6.4 with Notes: Factoring Special Cases of Binomials/Trinomials
Fri. 12/5 (all)	59 – 81	Video #6.5 with Notes: Factoring Completely
Fri. 12/5 (R) Mon. 12/8 (S)	**Quiz #6 during Lab Class**	
Mon. 12/8 (S) Tues. 12/9 (R)	82 – 100	Finish Practice Packet
Wed. 12/10 (all)	Review for Test #6	Review for Test #6
Thurs. 12/11 (S) Fri. 12/12 (R)	**Test #6**	TBA

Name: _____

Factoring Flow-Chart



Notes 6.1 - Factoring by GCF

GCF stands for: _____ _____ _____	
Prime:	Composite:
To find the GCF of a set of numbers, look for the _____ _____.	

Find the GCF of the following. Then divide each number by the GCF.

1.) 18, 24

GCF: _____

Divided by the GCF: _____, _____

2.) 90, 315

GCF: _____

Divided by the GCF: _____, _____

3.) x^8, x^7, x^6

GCF: _____

Divided by the GCF: _____, _____, _____

4.) $9a^4b^3, 15a^3b^2, 3a^2b^4$

GCF: _____

Divided by the GCF: _____, _____, _____

5.) Distribute. $3x\left(x^3+8x^2+4\right)$

What is the GCF of the answer to number 5?

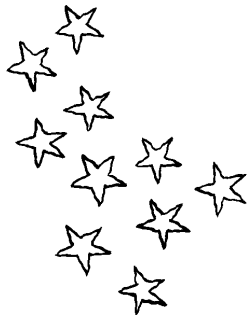
Steps to Factoring by GCF:

1. Find the _____ .
2. _____ the expression by the _____ .
3. Write the answer as _____ . (Undistribute)

Try these.

6.) $-5x^3y+25x$

7.) $4x^2y+7xy$



8.) Solve for a. $5a+10ax=4b$

9.) Solve for y. $3xy+9y=14$

Notes 6.2 - Factoring Trinomials by Trial-and-Error

General form of a quadratic expression: $ax^2 + bx + c$

Multiply each expression below:

1.) $(3x+4)(x+2)$

2.) $(5x+3)(2x+1)$

When you factor, you are "un-distributing" the trinomial into the product of two binomials. Try the following examples:

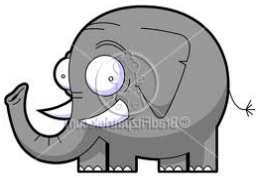
3.) $3x^2 - 2x - 8$

4.) $3x^2 + x - 14$

5.) $x^2 + x - 20$

6.) $-2x^2 + 3x + 9$

Notes 6.3 - Factoring Trinomials by Grouping



Multiply the following binomials: $(3x+2)(4x-7)$

Example: $6x^2+5x-6$

A. Consider the product (a)(c):

B. List out all possible factor pairs of (a)(c):

C. Find the pair that satisfies the requirements of the product-sum method (i.e., a pair of numbers whose product equals ac and whose sum is *b*).

D. Rewrite the expression with the same first and last term but with an expended b term using that pair of factors as coefficients:

E. We now have four terms that can be entered into a tabular model or factored by grouping.

F. Pair the first two and the last two. Factor out a common factor for each group.

Try the following examples:

1.) $3x^2 - 2x - 8$

2.) $3x^2 + x - 14$

3.) $x^2 + x - 20$

4.) $-2x^2 + 3x + 9$

Notes 6.4 - Special Cases of Factoring

Multiply the following binomials together:

1.) $(x-4)(x+4)$

2.) $(3x+5)(3x-5)$

General form for a difference of perfect squares:

$$a^2 - b^2 = (a-b)(a+b)$$

Factor:

3.) $x^2 - 9$

4.) $-9 + x^2$

5.) $x^2 + 16$

6.) $x^4 - 81$

Multiply the following binomials together:

7.) $(x+4)(x+4)$

8.) $(3x+5)(3x+5)$

General form for squaring a binomial:

$$(a+b)(a+b) = a^2 + 2ab + b^2$$

Factor.

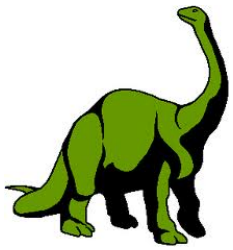
9.) x^2+6x+9

10.) $25x^2+60xy+36y^2$

11.) $x^2-14x+49$

12.) $x^2-10x-25$

Notes 6.5 - Factoring Completely



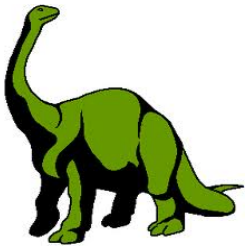
Try these steps in the following order.

A. Is there a GCF?

B. Does it look a Difference of Perfect Squares?

C. Can I factor a trinomial by grouping or trial-and-error?

D. Is my final answer completely factored?



Factor completely.

1.) $50x^2 - 242y^4$

2.) $c^3 + 2c^2 - 35c$

3.) $9x^2 - 78x - 27$

4.) $x^2y^2 + 7x^2y - 60x^2$