Factoring Mixed Review

Agenda

Warm-Up

Choose your path

HW Punchline #1-6

Reminders

- HW 4.5 due LAST CALL TODAY 4:10PM
- Bathroom Passes due WED end of class
- Tests/Quizzes must be made up by WED 9AM
- Test Corrections due Fr 2/19

Essential Question

How do I factor all types of polynomials?

Warm-Up Tuesday

1. Find the GCF of $15x^2y$, $45xy$, $5x^3$

$5x$

$15 = 3 \cdot 5 \cdot 1$, $45 = 3 \cdot 3 \cdot 5 \cdot 1$, $5 = 5 \cdot 1$

$x \cdot y$, $x \cdot y$, $x \cdot x$

2. Factor $4x^2 - 49$ HINT: are both terms squares?

$a: 2x \quad b: 7$

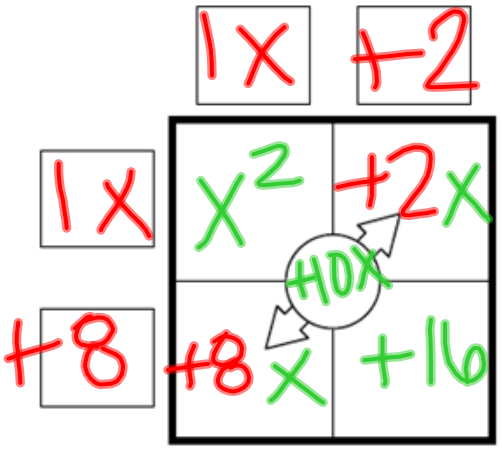
$a^2 - b^2 = (a-b)(a+b)$

$(2x+7)(2x-7)$

3. Factor $x^2 + 10x + 16$

$a: 1 \quad b: 10 \quad c: 16$

$= (x+2)(x+8)$



$a \cdot c$

16

1, 16

$2 + 8 = 10$

$4 \quad 4 = 8$

add to 10

Questions, comments, concerns? (ODDS ONLY)

Algebra I Unit 7 Factoring

Student Practice – Difference of Squares & Perfect Square Trinomials

Name _____ Date _____ Period _____

Difference of Two Squares: $a^2 - b^2 = (a-b)(a+b)$

Multiply using the property of Difference of Squares:

1. $(x+3)(x-3)$
2. $(3x+10)(3x-10)$

Determine whether or not each of the following is a perfect square:

3. $18x^2$
4. $4y^2$

Factor each difference of two squares using the property of difference of squares.

5. $9x^2 - 16$

a: 3x b: 4

$(3x+4)(3x-4)$

6. $25x^2 - 64$
7. $8x^2 - 50y^2 = 2(4x^2 - 25y^2)$

a: 2x b: 5y

$2(2x+5y)(2x-5y)$

8. $18x^2 - 98x^4$
9. Nancy is removing the lace from a square table cloth to make a new table cloth. The dimensions of the table cloth will be adjusted so that the length is increased by 6 inches and the width is decreased by 6 inches. Find the area of the new table cloth in terms of the old side length, x.

Algebra I Unit 7 Factoring

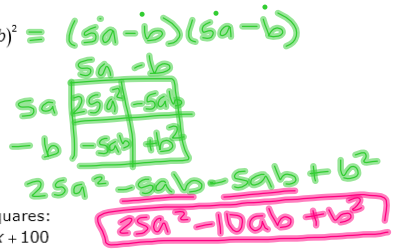
2 Special Products:

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

Multiply using the property of Special Products:

10. $(x+6)(x+6)$

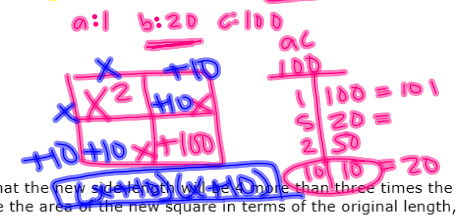
11. $(5a-b)^2$



Factor each of the following using properties of difference of squares:

12. $x^2 + 8x + 16$

13. $x^2 + 20x + 100$



14. A square is going to be enlarges so that the new side length will be 3 more than three times the length of the original side length, x. Write the area of the new square in terms of the original length, x.

15. The volume of a rectangular prism is given by the V=Bh. The volume is represented following expression $18x^2 - 24x + 8$. The height of the cylinder is 2.

a. Find the possible area of the base, B, in terms of x.

b. If the base is a square, find the length of each side in terms of x.

Factoring Mixed Review

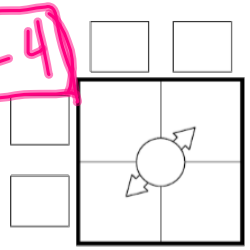
Essential Question How do I factor all types of polynomials?

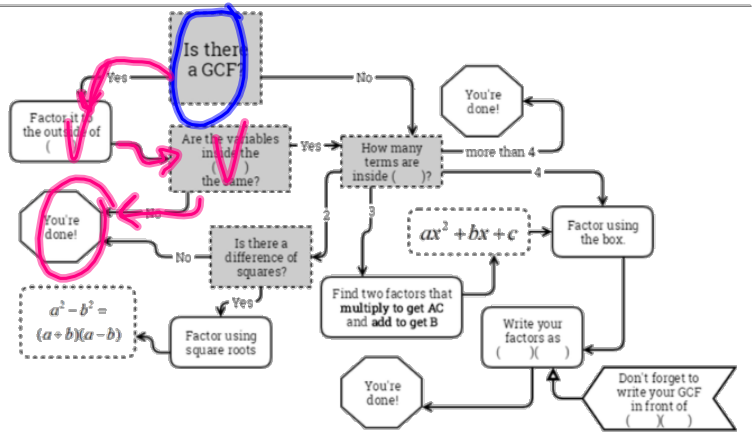
Name: _____

Factoring: Choose Your Path

1. $16x^3y - 6x^2y^2 - 8xy$

$2xy(8x^2-3xy-4)$

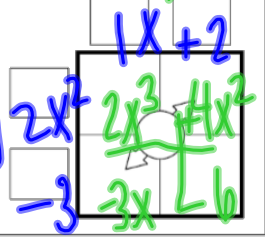


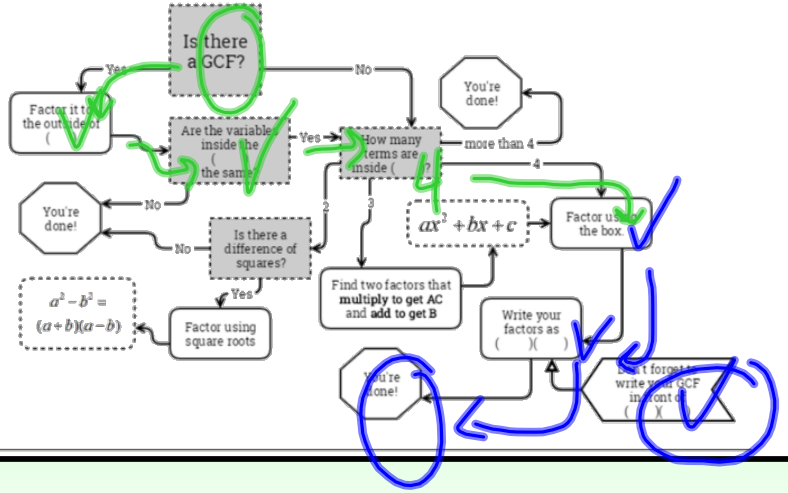


2. ~~$4x^3-8x^2-6x+12$~~ $4x^3+8x^2-6x-12$

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

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





Factoring Mixed Review

Essential Question How do I factor all types of polynomials?

3. $4x^2-16x+16$

$=4(x^2-4x+4)$

a: 1 b: -4 c: 4

$a\cdot c = 1\cdot 4$

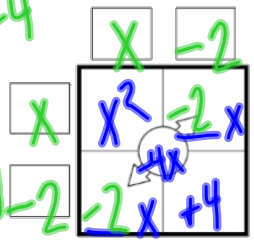
4

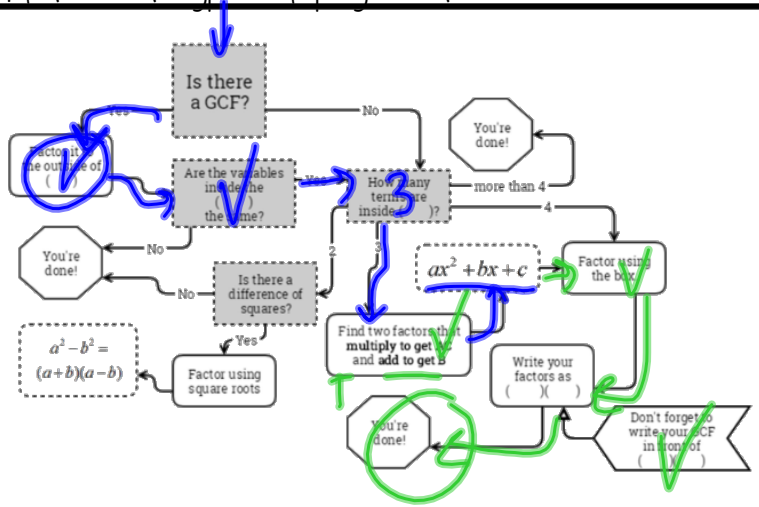
1+4=5

2+2=4

-2+-2=-4

$4(x-2)(x-2)$





4. $8x^2-14x+3$

a: 8 b: -14 c: 3

$a\cdot c = 8\cdot 3$

24

1+24=25

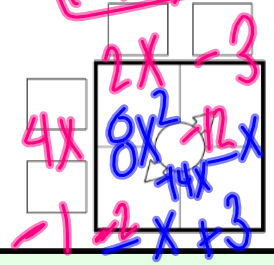
2+12=14

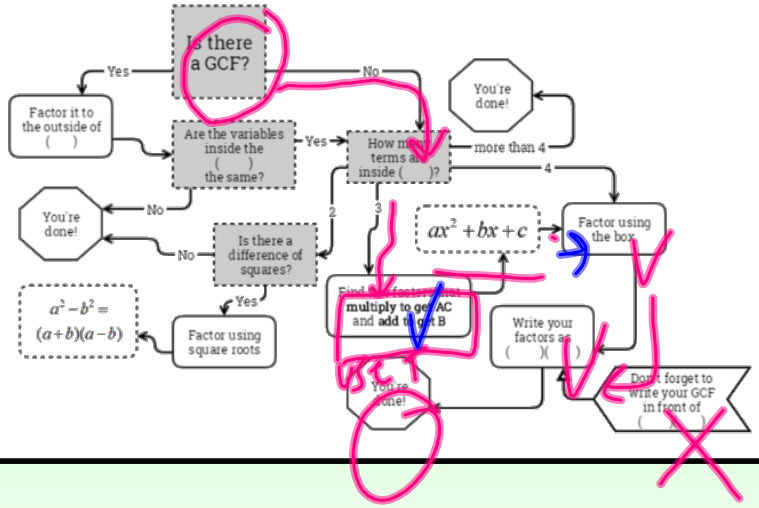
3 8

4 6

-2+-12=14

$(2x-3)(4x-1)$





HW #1-6. YOU NEED TO SHOW YOUR WORK

we will work on the rest of the problems the next few days, do not cross them out.

What Do You Call a Bunch of . . .

1. **Sheep stuck in a sauna?** 9 18 18 2 4 17 9 12 3 1 12 16 17
2. **Wolves not feeling well?** 3 11 17 6 8 15 11 13 3 8 15
3. **Salmon jammed together in a river?** 5 16 6 7 14 2 18 10

Write the expression in factored form, then find your answer in the answer column below. Each time the exercise number appears in the code, write the letter of the answer in the space above it. If the answer has a ●, leave the space blank.

Tuesday

1. $3n^2 - 21n + 30$
2. $n^3 + 8n^2 + 12n$
3. $5n^2 - 10n - 40$
4. $4n^3 + 8n^2 - 60n$
5. $2n^2 + 18$
6. $2n^2 - 18$
7. $6y^2 + 21y + 18$
8. $5y^3 + 2y^2 - 16y$
9. $24y^3 - 56y^2 - 80y$
10. $20y^3 + 45y$
11. $20y^3 - 45y$
12. $20y^3 - 60y^2 + 45y$
13. $7h^4 + 9h^3 + 2h^2$
14. $50h^4 - 32h^2$
15. $36h^3 - 60h^2 - 144h$
16. $30h^4 + 25h^3 - 5h^2$
17. $98h^5 - 2h$
18. $75h^4 + 60h^3 + 12h^2$

Answers 1-6

- A $5(n+2)(n-4)$
- N $2(n+3)^2$
- I $2(n+3)(n-3)$
- T $3(n-2)(n-5)$
- K $n(n+3)(n+4)$
- ● $4n(n-3)(n+5)$
- H $4n(n-3)(n-5)$
- G $2(n^2+9)$
- L $n(n+2)(n+6)$
- P $3(n-1)(n-10)$
- J $5(n-2)(n+4)$

Answers 7-12

- F $y(5y-4)(y+4)$
- X $5y(4y^2+9)$
- V $3(2y+1)(y+6)$
- M $5y(2y+3)^2$
- ● $5y(2y+3)(2y-3)$
- W $8y(3y-10)(y+1)$
- D $3(2y+3)(y+2)$
- Y $5y(4y-1)(y-9)$
- E $5y(2y-3)^2$
- R $8y(3y-5)(y+2)$
- C $y(5y-8)(y+2)$

Answers 13-18

- U $3h^2(5h+1)(h+4)$
- R $5h^2(6h-1)(h+1)$
- P $h^2(7h+2)(h+1)$
- H $2h^2(5h-4)^2$
- K $12h(3h+4)(h-3)$
- O $3h^2(5h+2)^2$
- B $5h^2(3h-1)(2h+1)$
- ● $2h^2(5h+4)(5h-4)$
- F $h^2(7h+1)(h+2)$
- S $2h(7h^2+1)(7h^2-1)$
- N $12h(3h+2)(h-6)$

Factoring Polynomials:
Factoring Polynomials Completely (Excludes Factoring by Grouping)

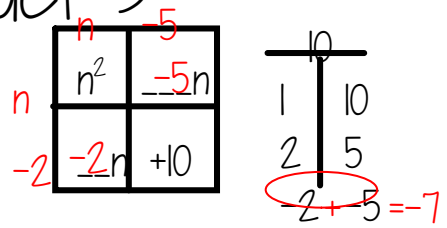
HW Help: Punchline #1-6

NO WORK = NO CREDIT = NO KIDDING

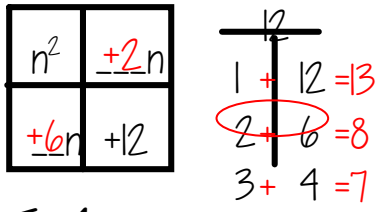
$ax^2 + bx + c$ ... Your T has a*c in the top, you want the factors that ADD to b!

~~Hints~~ All of these expressions have a GCF!

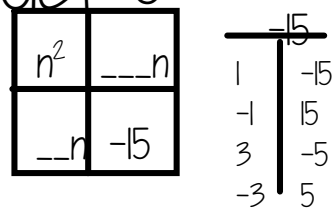
1. GCF: 3



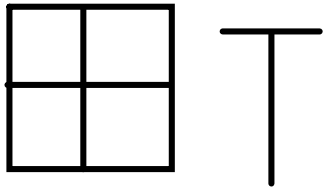
2. GCF: n



3. GCF: 5



4. GCF: 4n



5. Factor out a 2

You CANNOT factor a SUM of squares! Leave it alone!

6. Factor out a 2

You CAN factor a DIFFERENCE of squares... a=n, b=3

~~Solutions~~

1. T
2. L
3. A
4. O
5. G
6. I