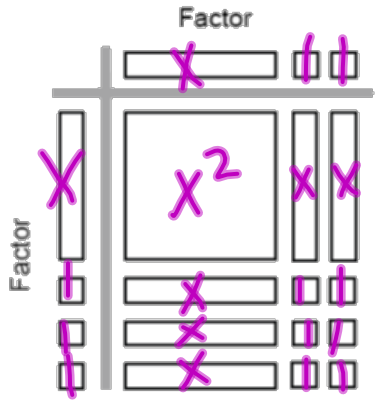
Factoring Trinomials

Essential Question: How do I factor (undistribute) trinomials?

$\square \to x^2$ $\square \to x$ $\square \to 1$

1.

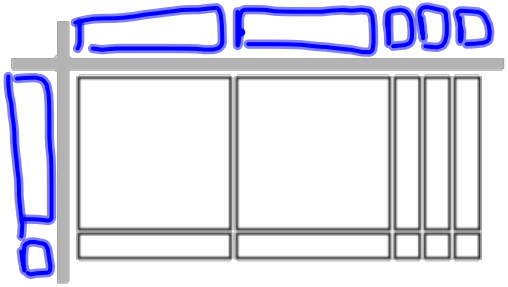

Factor
Factor
x
x
x

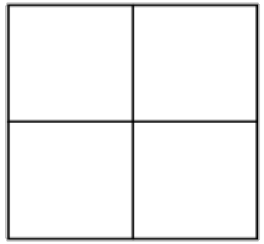
Factoring Trinomials

Essential Question: How do I factor (undistribute) trinomials?

PAUSE and try these!

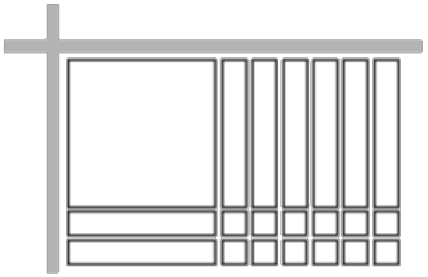
3.

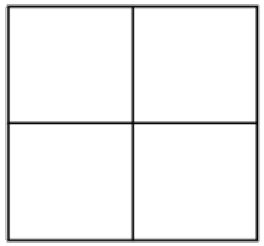




Polynomial
$2x^2+5x+3$
Factors
$(2x+3)(x+1)$

4.





Polynomial
$x^2+8x+12$
Factors
$(x+2)(x+6)$

Factoring Trinomials

Essential Question: How do I factor (undistribute) trinomials?

Standard Form of a Quadratic: x^2

$ax^2 + bx + c$

a, b, c are numbers

5. $1x^2 + 9x + 18$

a: 1
b = 9
c = 18

6. $3x^2 - 1x - 2$

a: 3
b: -1
c: -2

7. $4x^2 - 9 + 0x$

a = 4
b = 0
c = -9

8. $1x^2 - 64$

a = 1
b = 0
c = -64

Factoring Trinomials

Essential Question: How do I factor (undistribute) trinomials?

Factor the following expressions completely: ( )( )

9. $2x^2 + 7x + 3 = (x+3)(2x+1)$

a=2 b=7 c=3

a·c

2·3=6

1+6=7

2+3=5

↑factors of 6 that add to 7

	x	+3
2x	$2x^2$	+6x
+1	+1x	+3

=7x

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

a=3 b=-1 c=-2

3(-2)=-6

1 | -6 = -5

-1 | 6 = 5

2 | -3 = -1 +2

-2 | 3

↑ADD to -1

	x	-1
3x	$3x^2$	-3x
+2	+2x	-2

Factoring Trinomials

Essential Question: How do I factor (undistribute) trinomials?

Factor the following expressions completely:

11. Which is the correct factorization of $x^2 + 9x + 18$?

a=1 b=9 c18

- CALCULATOR shortcut question in $y_1 =$
- check each answer choice in $y_2 =$ do they match?

A. $(x+2)(x+9)$ X

B. $(x+6)(x+3)$

C. $(x-6)(x-3)$ X

D. $(x-6)(x+3)$ X

multiply answer choices

X	Y1	Y2
0	18	18
1	28	28
2	40	40
3	54	54
4	70	70
5	88	88
6	108	108

Press + for ΔTbl

12. Which is the correct factorization of $x^2 - x - 12$?

TRY me ü

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

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

C. $(x-6)(x+2)$

D. $(x+6)(x-2)$

Factoring Trinomials

Essential Question: How do I factor (undistribute) trinomials?

Factor the following expressions completely:

13. $4x^2 - 9$

$a = 4$ $b = 0$ $c = -9$

$4(-9) = -36$

1	-36 = -35
-1	36
2	18
-2	18
3	-12
4	-9 = -5
6	-6 = 0

ADD to 0

$2x \quad -3$

$2x$	$4x^2$	$6x$
$+3$	$6x$	-9

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

14. $x^2 - 64$

TRY :)

$(x-8)(x+8)$

Can you figure out the shortcut?

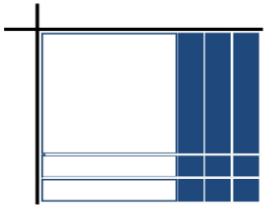
Algebra I - Unit 8: Topic 1 – Factoring #1-12

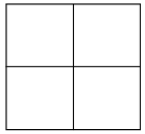
Practice – Factoring **pp 540-571**

Name _____ Date _____ Period _____

For the Algebra framework below, show the 'tile' factors, then write the polynomial and its factors.

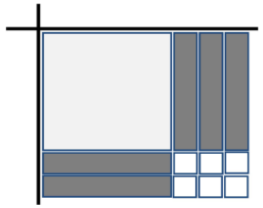
1.





Polynomial
Factors

2.



Polynomial: _____

Factors: _____

Factor the following:

3. $x^2 + 4x + 4 =$ _____

4. $2x^2 + x - 6 =$ _____

5. $25x^2 - 4 =$ _____

6. $x^2 - 14x + 40 =$ _____

Algebra I - Unit 8: Topic 1 – Factoring

7. $x^2 - 10x + 25 =$ _____

8. $x^2 - 100 =$ _____

9. $3x^2 - 4x - 15 =$ _____

10. $x^2 - x - 20 =$ _____

11. Which is the correct factorization of $x^2 - 10x - 24$?

A $(x-4)(x-6)$
B $(x+4)(x-6)$
C $(x-2)(x+12)$
D $(x+2)(x-12)$

12. Which product of binomials is represented by the model?

A $(x+4)(3x+5)$
B $(x+4)(5x+3)$
C $(x+3)(5x+4)$
D $(x+5)(3x+4)$

$5x^2$	$+4x$
$+15x$	$+12$