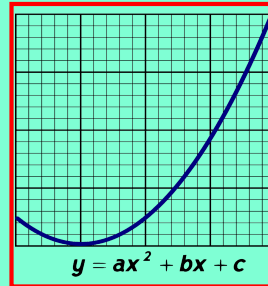


Math 125

Fall 2021

Lecture 2



Use Soil method to simplify:

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

$$= 9x^2 - 12x - 12x + 16 = 9x^2 - 24x + 16$$

Deg. = 2

L.C. = 9

Const. = 16

Trinomial

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

$$= 16x^2 + 24x - 12x - 18 = 16x^2 + 12x - 18$$

Deg. = 2

L.C. = 16

Const. = -18

Use Foil Method to Simplify

Deg. = 3

L.C. = 1

$$1) (x+3)(x^2-3x+9) - 27$$

$$= x^3 - 3x^2 + 9x + 3x^2 - 9x + 27 - 27 = \boxed{x^3}$$

Monomial

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

$$= x^3 + 2x^2 + 4x - 2x^2 - 4x - 8 + 8 = \boxed{x^3}$$

Distribute & Simplify

$$1) -3(2x-1) = -3(2x) - 3(-1) = \boxed{-6x+3}$$

Binomial
Deg. = 1, L.C. = -6, Const = 3

$$2) 2x^2(4x-5) = \boxed{8x^3 - 10x^2}$$

Binomial
Deg. = 3
L.C. = 8

NO
constant

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

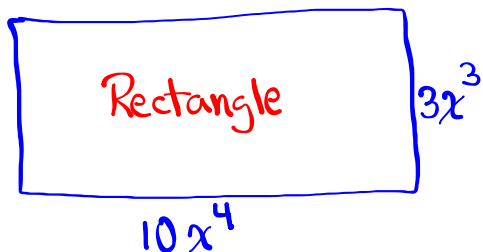
$$= -3x^4(2x^2) - 3x^4(-3x) - 3x^4(6)$$

$$= \boxed{-6x^6 + 9x^5 - 18x^4}$$

Trinomial
Deg. = 6

L.C. = -6
NO Constant

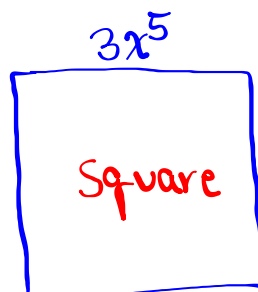
Find the area



$$A = LW = 10x^4(3x^3)$$

$$\boxed{30x^7}$$

Monomial, Deg. = 7, L.C. = 30



$$A = S^2 = (3x^5)^2$$

$$= 3x^5(3x^5)$$

$$\boxed{9x^{10}}$$

Monomial

Deg. 10, Coef. = 9

Factor

$$5x + 10 = 5x + 5 \cdot 2 = \boxed{5(x + 2)}$$

GCF = Greatest

Common Factor

$$2x^4 - 8x^3 = 2 \cdot x \cdot x \cdot x \cdot x - 2 \cdot 2 \cdot 2 \cdot x \cdot x \cdot x$$

$$= 2x^3(x - 4)$$

↑

GCF

Find the missing factor

$$1) x^3 + 3x^2 = x^2(x + 3)$$

$$2) x^2 + 5x + 4 = (x + 4)(x + 1)$$

+4x
+1x

$$3) x^2 - 2x - 24 = (x + 4)(x - 6)$$

+4x
-6x

Factor completely:

$$x^2 + 11x + 24 = (x + 3)(x + 8)$$

$$1 \cdot 24$$

$$2 \cdot 12$$

$$3 \cdot 8$$

$$4 \cdot 6$$

$$x^2 + 22x - 48 = (x + 8)(x - 6)$$

$$1 \cdot 48$$

$$2 \cdot 24$$

$$3 \cdot 16$$

$$4 \cdot 12$$

$$6 \cdot 8$$

Use FOIL to Verify

Zero-Product Rule
 OR
 Zero-Factor Property \Rightarrow IF $A \cdot B = 0$, then
 $A = 0$ or $B = 0$
 (Maybe both)

Solve

$$(x-3)(x+8) = 0$$

$$x-3=0 \quad \text{OR} \quad x+8=0$$

$$x=3$$

$$x=-8$$

Solution Set

$$\{-8, 3\}$$

Solve

$$\underbrace{(2x-5)}_A \underbrace{(2x+5)}_B = 0$$

Zero-Product Rule

$$2x-5=0$$

OR

$$2x+5=0$$

Solution Set

$$2x = 5$$

$$\boxed{x = \frac{5}{2}}$$

OR

$$2x = -5$$

$$\boxed{x = -\frac{5}{2}}$$

$$\left\{ \pm \frac{5}{2} \right\}$$

Solve $x^2 - x - 20 = 0$ by using factoring method.

$$x^2 - x - 20 = 0$$

$$(x - 5)(x + 4) = 0$$

$$x - 5 = 0 \quad \text{OR} \quad x + 4 = 0$$

$$\boxed{x = 5} \quad \text{OR} \quad \boxed{x = -4}$$

Solution Set
 $\{-4, 5\}$

Solve $x^2 - 10x + 24 = 0$ by factoring method.

$$(x - 4)(x - 6) = 0$$

$$1 \cdot 24 \quad x - 4 = 0 \quad \text{OR} \quad x - 6 = 0$$

$$2 \cdot 12 \quad x = 4 \quad \text{OR} \quad x = 6$$

$$3 \cdot 8$$

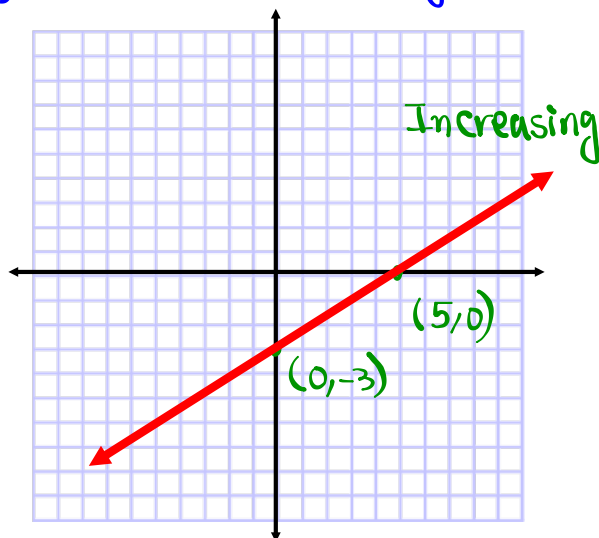
$$4 \cdot 6$$

$\{4, 6\}$

Graph $3x - 5y = 15$ by completing the table below:

x	y
0	-3
5	0

Intercept
Method

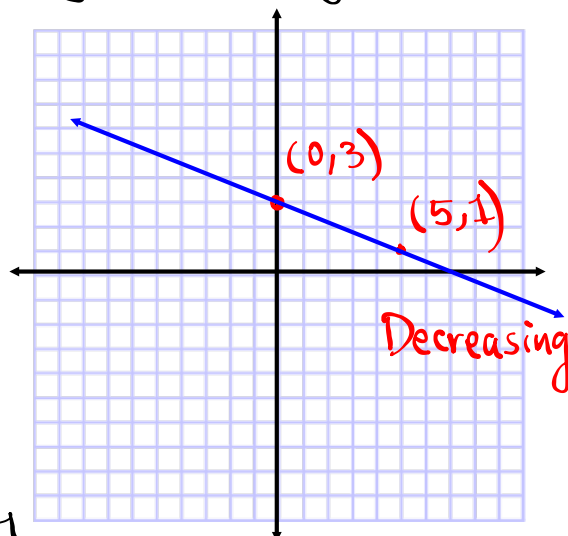


Graph $y = \frac{-2}{5}x + 3$ by completing the table below

x	y
0	3
5	1

$$y = \frac{-2}{5}(0) + 3 = 0 + 3 = 3$$

$$y = \frac{-2}{5}(5) + 3 = -2 + 3 = 1$$



Back to Factoring

$$A^2 - B^2 = (A + B)(A - B)$$

Difference of Two Squares

$$x^2 - 100 = x^2 - 10^2 = (x + 10)(x - 10)$$

$$9x^2 - 25 = (3x)^2 - (5)^2 = (3x + 5)(3x - 5)$$

$$49x^2 - 36y^2 = (7x)^2 - (6y)^2 = (7x + 6y)(7x - 6y)$$

Are you aware that SE 0 is due?

one file, Portrait style, Answers in designated area.

Class QZ 1

1) Simplify $\frac{\sqrt{5^2 - (-3)^2}}{\sqrt{16}} = \frac{\sqrt{25 - 9}}{4} = \frac{\sqrt{16}}{4} = \frac{4}{4} = 1$

2) Solve: $3(x + 1) - 10 = -7$

$$3x + 3 - 10 = -7$$

$$3x - 7 = -7$$

$$3x = -7 + 7$$

$$3x = 0$$

$$x = \frac{0}{3} \quad \boxed{x=0}$$

$\{0\}$