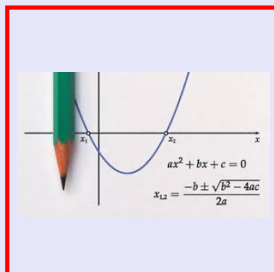


Math 125
Spring 2022
Lecture 1



Math 125

15 Weeks

T Th ✓

8:50 - 11:20 ✓

You must have

- 1) Internet access with printer.
- 2) Access to Canvas. (Canvas App.)
- 3) TI 83 or TI 84 calculator with you in class at all time.
- 4) Final Exam June 2, 2022

www.mymathclasses.com

1) Check course **Syllabus**

Click on Math 125

2) Work on **SG 0.**

3) Arrive **on time** and stay entire time.

4) **No Chat** during Zoom meeting

5) Download **Canvas App** for students.

Some math review:

1) Simplify: $(3^2 + 4^2 - 5^2)^2$
 $= (9 + 16 - 25)^2 = (25 - 25)^2 = 0^2 = 0$
 1) 0

2) Simplify: $3(2x - 4) + 12$
 $= 6x - 12 + 12$
 $= 6x$
 2) 6x

3) Solve $2x - 8 = -x + 7$
 $2x + x = 7 + 8$
 $3x = 15$
 $x = \frac{15}{3}$
 $x = 5$
 Solution Set
 $\{5\}$
 3) $\{5\}$

4) Simplify: $x^3 \cdot x^7 = x^{3+7} = \boxed{x^{10}}$

Hints:
 $x^m \cdot x^n = x^{m+n}$

5) Simplify: $\frac{x^{15}}{x^{14}} = x^{15-14} = x^1 = \boxed{x}$

$\frac{x^m}{x^n} = x^{m-n}$

6) Simplify: $(x^7)^3 = x^{7 \cdot 3} = \boxed{x^{21}}$

$(x^m)^n = x^{mn}$

7) Simplify $(-5x^4)^3 = (-5)^3 (x^4)^3 = \boxed{-125x^{12}}$

Hint
 $(xy)^n = x^n y^n$

8) Simplify $\frac{x^8 \cdot (x^3)^2}{(x^2)^7} = \frac{x^8 \cdot x^6}{x^{14}} = \frac{x^{14}}{x^{14}} = \boxed{1}$
 $= x^{14-14} = x^0 = 1$
 $x \neq 0$

9) Distribute & Simplify $4(x-5) - 2(2x-10)$

Do not use \emptyset
 for zero.

$= \cancel{4x} - \cancel{20} - \cancel{4x} + \cancel{20} = \boxed{0}$

Not
Zero

FOIL and Simplify

$$1) (x+4)(x+6)$$

$$= x^2 + 6x + 4x + 24 = x^2 + 10x + 24$$

$$2) (x-8)(x-2)$$

$$= x^2 - 2x - 8x + 16 = x^2 - 10x + 16$$

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

$$= 4x^2 - 10x + 10x - 25 = 4x^2 - 25$$

First ones
Outside "
Inside "
Last "

$x^2 = x \cdot x$, use this to simplify

$$1) (x+4)^2 = (x+4)(x+4) = x^2 + 4x + 4x + 16$$

→ FOIL

$$= x^2 + 8x + 16$$

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

→ FOIL

$$= x^2 - 6x + 9$$

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

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

→ FOIL → FOIL


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

$$= 8x^2 + 18$$

Solve & graph the solution on the number line system:

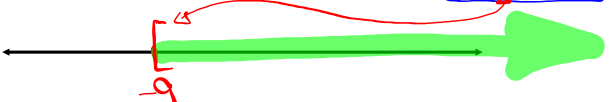
1) $3x + 2 < 20$
 $3x < 20 - 2$
 $3x < 18$

we need to get $1x$
 Divide by 3.
 $\frac{3}{3}x < \frac{18}{3}$ $x < 6$



2) $2x - 2 \leq 5x + 25$
 $2x - 5x \leq 25 + 2$
 $-3x \leq 27$

Divide by -3
 $\begin{matrix} -3 \\ -3 \end{matrix} x \geq \frac{27}{-3}$
 $x \geq -9$



3) $-2 < 3x + 1 \leq 13$

Hint:
 Isolate x
 in the middle.

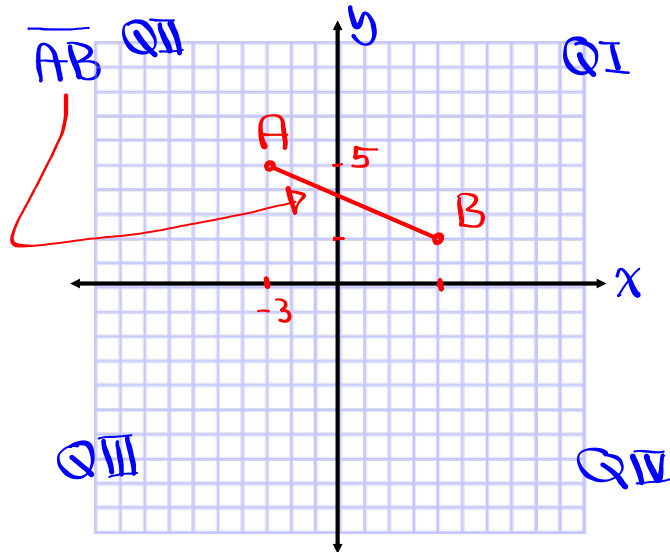
$-2 - 1 < 3x + 1 - 1 \leq 13 - 1$

$-3 < 3x \leq 12$ Divide by 3

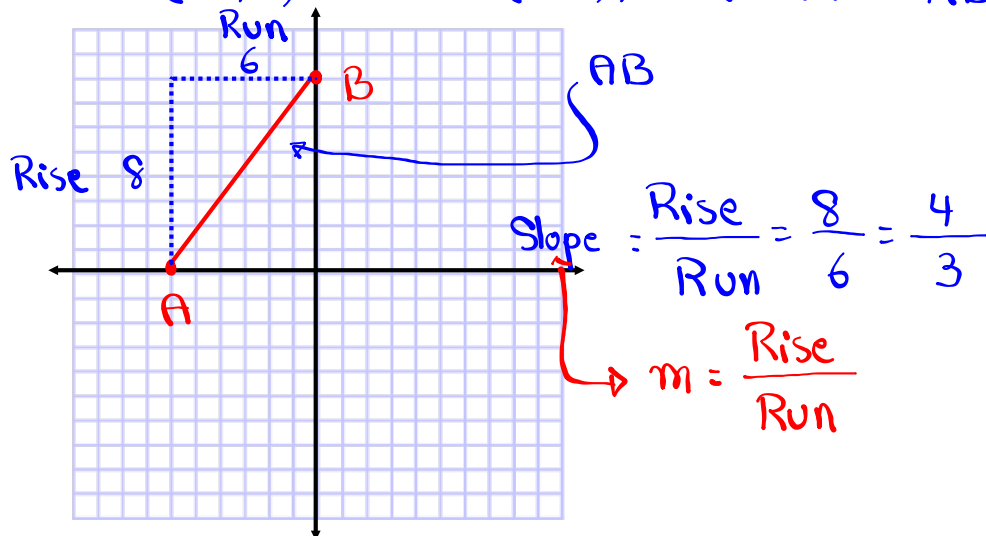
$-\frac{3}{3} < \frac{3}{3}x \leq \frac{12}{3} \Rightarrow$ $-1 < x \leq 4$



Plot $A(-3,5)$ and $B(4,2)$, then draw
line segment \overline{AB}



Plot $A(-6,0)$ and $B(0,8)$, then draw \overline{AB} .



Class QZ 1

Simplify

$$4(3x - 5y) - 2(6x - 10y)$$

Box Your

$$= \cancel{12x} - \cancel{20y} - \cancel{12x} + \cancel{20y}$$

Final answer

$$= \boxed{0}$$

Portrait style only

Reverse of multiplication \leftrightarrow Factoring

$$2x + 20 = 2 \cdot x + 2 \cdot 10$$

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

$$6x^2 - 9x = 2 \cdot 3 \cdot x \cdot x - 3 \cdot 3 \cdot x$$

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

$$2x(3x - 5) + 7(3x - 5) = (3x - 5)(2x + 7)$$

Factor $x^2 + 7x + 10 = (x + 2)(x + 5)$

FOIL, Simplify
to Verify

Factor $x^2 + 2x - 15 = (x + 5)(x - 3)$

Factor $x^2 - 10x + 24 = (x - 4)(x - 6)$

Foil, Simplify, to Verify.

Zero - Product Rule:

If $A \cdot B = 0$, then $A = 0$ or $B = 0$
 Maybe both

Ex: Solve $(x - 3)(x + 7) = 0$

$x - 3 = 0$
 $x = 3$

$x + 7 = 0$
 $x = -7$

Solution Set $\{-7, 3\}$

Solve $(2x - 3)(3x + 5) = 0$ by using

Zero-Product Rule.

$$2x - 3 = 0 \quad \text{OR} \quad 3x + 5 = 0$$

$$2x = 3$$

$$\boxed{x = \frac{3}{2}}$$

$$3x = -5$$

$$\boxed{x = -\frac{5}{3}}$$

Solution Set

$$\left\{ \frac{-5}{3}, \frac{3}{2} \right\}$$

Solve

$x^2 + x - 30 = 0$ by factoring.

$$(x - 5)(x + 6) = 0$$

Factor the left-hand side, then use

Zero-Product Rule.

$$x - 5 = 0 \quad \text{OR} \quad x + 6 = 0$$

$$\downarrow$$

$$\boxed{x = 5}$$

$$\downarrow$$

$$\boxed{x = -6}$$

Solution Set

$$\{-6, 5\}$$

Evaluate $b^2 - 4ac$ for $a=3$, $b=-5$, and $c=2$

$$b^2 - 4ac = (-5)^2 - 4(3)(2)$$

$$= 25 - 4(3)(2)$$

$$= 25 - 24 = \boxed{1}$$

Evaluate

$$\frac{-b - \sqrt{b^2 - 4ac}}{2a}$$

for $a=1$, $b=-4$,
and $c=4$.

$$b^2 - 4ac$$

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

$$= 16 - 4(1)(4) = 16 - 16 = 0$$

$$\sqrt{b^2 - 4ac} = \sqrt{0} = 0$$

$$\frac{-b - \sqrt{b^2 - 4ac}}{2a} = \frac{-(-4) - 0}{2(1)} = \frac{4 - 0}{2} = \frac{4}{2} = \boxed{2}$$

WORK ON SET 0