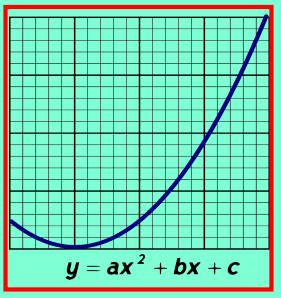
Math 125

Fall 2021

Lecture 1



Some Review

1) Reduce $\frac{75}{120} = \frac{5 \cdot 15}{5 \cdot 24} = \frac{5 \cdot 3}{3 \cdot 8} = \boxed{\frac{5}{8}}$

2) Convert $.2\%$ to

a) Decimal

$.2\% = .2(.01) = \boxed{.002}$

b) reduced fraction

$.2\% = \frac{.2}{100} = \frac{.2(10)}{100(10)}$

$= \frac{2}{1000} = \boxed{\frac{1}{500}}$

3) Simplify: $\dfrac{\sqrt{3^2+(-4)^2}}{\sqrt[3]{1000}} = \dfrac{\sqrt{9+16}}{\sqrt[3]{1000}} = \dfrac{\sqrt{25}}{\sqrt[3]{1000}} = \dfrac{5}{10} = \boxed{\dfrac{1}{2}}$

4) Solve $2x - 15 = -55$

$2x = -55 + 15$

$2x = -40$

$x = \dfrac{-40}{2}$

$\boxed{x = -20}$

$\{-20\}$ Solution Set

5) Simplify: $\dfrac{2}{3} - \dfrac{1}{4} = \dfrac{2\cdot 4}{3\cdot 4} - \dfrac{1\cdot 3}{4\cdot 3}$

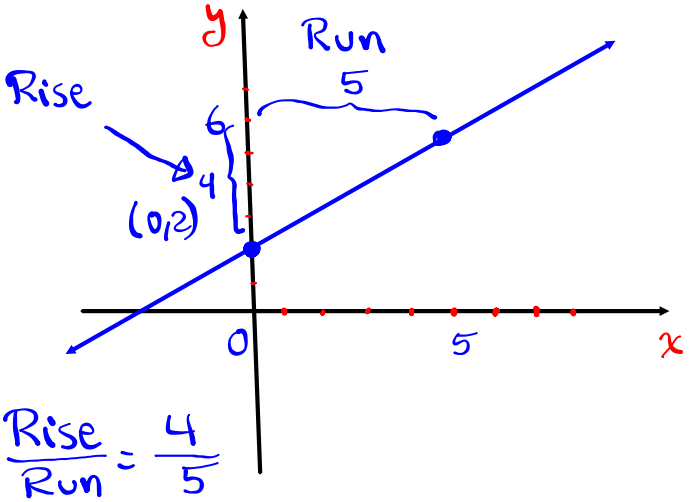
$= \dfrac{8}{12} - \dfrac{3}{12} = \dfrac{8-3}{12} = \boxed{\dfrac{5}{12}}$

6) Simplify $3\dfrac{1}{3} \cdot \sqrt{\dfrac{9}{100}} = \dfrac{10}{3} \cdot \dfrac{3}{10} = \boxed{1}$

7) $5\dfrac{2}{5} \div 2\dfrac{1}{4} = \dfrac{27}{5} \div \dfrac{9}{4} = \dfrac{27}{5} \cdot \dfrac{4}{9} = \dfrac{12}{5} = \boxed{2\dfrac{2}{5}}$

Plot $(0,2)$ & $(5,6)$, Draw the line that contains them.

Show rise & run of the slope of the line.



Slope $m = \frac{\text{Rise}}{\text{Run}} = \frac{4}{5}$

Solve

$3(x-2) + 8 = 2(x+1)$

$3x - 6 + 8 = 2x + 2$

$3x + 2 = 2x + 2$

$3x - 2x = 2 - 2$

$\boxed{x = 0}$ Solution Set $\rightarrow \{0\}$

Do not use $\emptyset$ for Zero.

Solve

$3(2x-5)-2(3x+4)=23$

$6x-15-6x-8=23$

$-23=23$

False

There is no Solution. $\emptyset = \{\ \}$ empty set

Solve & graph

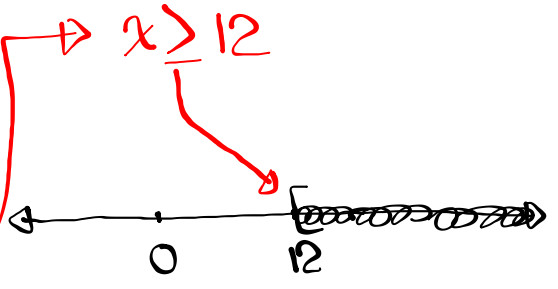
$3x-7 \geq x+17$

$3x-x \geq 17+7$

$2x \geq 24$

$\frac{2}{2}x \geq \frac{24}{2}$

$x \geq 12$



Solve & graph

$3x + 8 > 5x + 14$

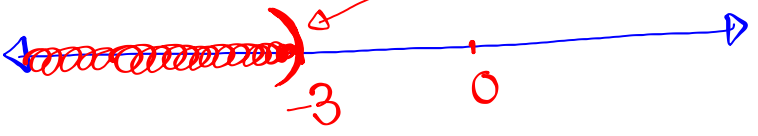
$3x - 5x > 14 - 8$

$-2x > 6$

Divide by -2

$\frac{-2}{-2}x < \frac{6}{-2}$

$\boxed{x < -3}$



Use Foil method to Simplify

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

F → First ones

O → Outside ones

I → Inside ones

L → Last ones

$= 6x^2 - 3x + 8x - 4$

$= \boxed{6x^2 + 5x - 4}$ Trinomial

Deg. = 2

Lead. Coef. = 6

Const. = −4

Simplify: $(2x+5)^2$

Hint: $u^2 = u \cdot u$

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

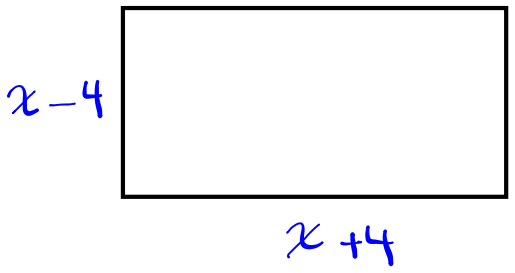
$= 4x^2 + 10x + 10x + 25$

$= \boxed{4x^2 + 20x + 25}$

Deg. = 2

Lead. Coef. = 4

Constant = 25



Find area & perimeter in Simplest form.

Rectangle

$A = LW$

$P = 2L + 2W$

$A = LW$

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

$= x^2 - 4x + 4x - 16$

$= \boxed{x^2 - 16}$

$P = 2L + 2W$

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

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