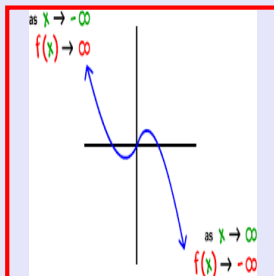


Math 245
Spring 2022
Lecture 2



More reviews:

1) Solve $2(x-3) + 4 = -3x - 12$

$$2x - 6 + 4 = -3x - 12$$

$$2x - 2 = -3x - 12$$

$$2x + 3x = -12 + 2$$

$$5x = -10$$

$$x = \frac{-10}{5}$$

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

Solution Set

$$\{-2\}$$

1) $\{-2\}$

2) Solve & graph

$$2(x+4) - 5 \leq 4(x-1) - 9$$

$$2x + 8 - 5 \leq 4x - 4 - 9$$

$$2x + 3 \leq 4x - 13$$

$$2x - 4x \leq -13 - 3$$

$$-2x \leq -16$$

Divide both Sides

by -2

$$\frac{2}{-2}x \geq \frac{-16}{-2}$$

$$x \geq 8$$

Set-Builder Notation $\{x \mid x \geq 8\}$
Such that

Interval notation $[8, \infty)$

Simplify

1) $2(x-4) - 3(x+1) + 11$

$$= \underline{2x} - 8 - \underline{3x} - 3 + 11$$

$$= -x - 11 + 11 = \boxed{-x}$$

1) $-x$

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

$$= 4x^2 + 6x - 6x - 9 = \boxed{4x^2 - 9}$$

2) $4x^2 - 9$

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

$$= (3x-5)(3x-5) + 15x$$

$$= 9x^2 - 15x - 15x + 25 + 15x$$

$$= \boxed{9x^2 - 15x + 25}$$

3) $9x^2 - 15x + 25$

Simplify

$$1) x^6 \cdot x^4 \cdot x^2 = x^{6+4+2} = \boxed{x^{12}}$$

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

$$2) \frac{x^{14} \cdot x^3}{x^1 \cdot x^5} = \frac{x^{14+3}}{x^{1+5}} = \frac{x^{17}}{x^6} = x^{17-6} = \boxed{x^{11}}$$

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

$$(x^m)^n = x^{m \cdot n}$$

$$3) (-2x^5)^3 = (-2)^3 (x^5)^3 = -8x^{5 \cdot 3} = \boxed{-8x^{15}}$$

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

Factor [write in product form]

$$3x - 30 = 3x - 3 \cdot 10 = \boxed{3(x - 10)}$$

$$5x^2 + 35x = 5x \cdot x + 5 \cdot 7 \cdot x = \boxed{5x(x + 7)}$$

$$4(2x - 3) - 3x(2x - 3) = \boxed{(2x - 3)(4 - 3x)}$$

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

To verify \Rightarrow we need to FOIL and simplify.

$$x^2 - x - 30 = (x - 6)(x + 5)$$

Zero-Product Rule: If $A \cdot B = 0$, then

$A=0$ or $B=0$

Maybe both

Solve $x^2 - x - 30 = 0$

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

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

$$\boxed{x=6}$$

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

Solution Set

$\{-5, 6\}$

In my website, look for SG & 0 \Rightarrow Work on it

In Canvas \Rightarrow Announcement \Rightarrow Sample Study Guide

Class QZ 1

1) Simplify: $(3 \cdot 5 - 20)^2 = (15 - 20)^2$
 $= (-5)^2 = \boxed{25}$

↑
Times

2) Solve: $3(x-4) + 8 = x-4$

$$3x - 12 + 8 = x - 4$$

$$3x - 4 = x - 4$$

$$3x - x = -4 + 4$$

$$2x = 0$$

$$x = \frac{0}{2} \quad \boxed{x=0}$$

Solution Set $\{0\}$