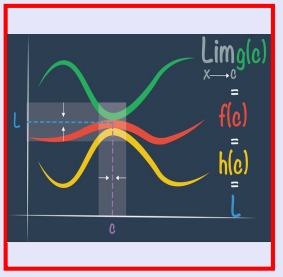
Calculus I

Lecture 1



Feb 19-8:47 AM

Rahim Faradineh

ELAC Spring 1990

Math 261 Calc. I

M – Th 7:25 – 8:35

All Materials can be found on my website

www.mymathclasses.com

office hours

Virtual (Zoom) MW 5:00 – 7:00 PM

TTh 12:30 – 2:00 PM

All Communications must be done via Canvas.

Make Sure to review the Syllabus, and Complete the last page, the Submit in Canvas.

Aug 26-7:32 AM

Some math review:

Given $a=3$, $b=-5$, and $c=2$

1) Find $b^2-4ac=(-5)^2-4(3)(2)=25-24=\boxed{1}$

Discriminant (Quadratic Equation)

2) Find $\sqrt{b^2-4ac}=\sqrt{1}=\boxed{1}$

Aug 26-7:41 AM

Given $f(x)=\frac{3}{5}x+2$

↳ Function of x

$x \rightarrow$ input (Domain)

$f(x) \rightarrow$ output (Range)

Every input has only one output.

1) Find $f(0)=\frac{3}{5}(0)+2=0+2=2 \rightarrow (0,2)$

2) Find $f(5)=\frac{3}{5}(5)+2=3+2=5 \rightarrow (5,5)$

3) Find x such that $f(x)=0$. $\rightarrow \left(\frac{-10}{3},0\right)$

$f(x)=\frac{3}{5}x+2$

Linear Function

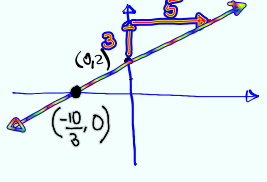
Slope $m=\frac{3}{5}=\frac{\text{Rise}}{\text{Run}}$ Y-Int $(0,2)$

$\frac{3}{5}x+2=0$

$3x+10=0$

$3x=-10$

$x=\frac{-10}{3}$



Aug 26-7:45 AM

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

$3x - 3 + 4 = x + 1$

$3x + 1 = x + 1$

$3x - x = 1 - 1$

$2x = 0$

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

$\boxed{x = 0}$

Soln Set $\{0\}$

Do not use $\emptyset$ for Zero

Solve $2x^2 - 5x + 3 = 0$

Quadratic Eqn. $\rightarrow ax^2 + bx + c = 0$

using Quadratic Formula $a = 2, b = -5, c = 3$

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

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

$= 1$

$x = \frac{-(-5) \pm \sqrt{1}}{2(2)} = \frac{5 \pm 1}{4}$

$x = \frac{5+1}{4} = \frac{6}{4} = \frac{3}{2}$

Soln Set $\{1, \frac{3}{2}\}$

$x = \frac{5-1}{4} = \frac{4}{4} = 1$

Aug 26-7:55 AM

Solve $2x^2 - 5x + 3 = 0$ by Factoring.

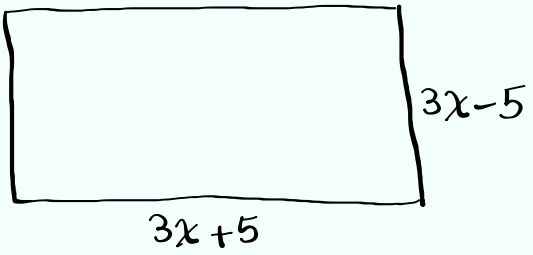
$(2x - 3)(x - 1) = 0$

$2x - 3 = 0$ OR $x - 1 = 0$

$x = \frac{3}{2}$ $x = 1$

Aug 26-8:04 AM

Find area & perimeter of the rectangle below



$A = LW$

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

$(A+B)(A-B)$

Conjugates

$= (3x)^2 - (5)^2$

$A^2 - B^2$

$= 9x^2 - 25$

$P = 2L + 2W$

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

$= 6x + 10 + 6x - 10 = 12x$

Aug 26-8:07 AM