4.1 Solving Polynomial Equations *PART 2*

Math Learning Target:

"By the end of class, I can solve any polynomial equation."

Ex. 1: Use graphing technology (desmos or GeoGebra) to solve, to the nearest hundredth.

$$21x^3 - 58x^2 + 10 = -18x^4 - 51x$$

Method 1

$f(x) = g(x)$

Find the point(s) where these two functions intersect.

$f(x) = 21x^3 - 58x^2 + 10$

$g(x) = -18x^4 - 51x$

OR

Method 2

Create 1 function: $h(x)$

Find the **zeros** of this new function; i.e. $h(x) = 0$

$21x^3 - 58x^2 + 10 + 18x^4 + 51x = 0$

$18x^4 + 21x^3 - 58x^2 + 51x + 10 = 0$

$\therefore h(x) = 18x^4 + 21x^3 - 58x^2 + 51x + 10$

the solution is $\{x \in \mathbb{R} \,/\, x \doteq -2.71,\ x \doteq -0.16\}$

Entertainment: p. 204 # *8ac, 7b, 9c, 10, 11 , 13, 15, 16***, 18**

*** do #8 first** **** $x \in W$ means x is a Whole number** $W = \{0,1,2,3,\ldots\}$

*** wrong answer in back: it should be x=5, x= -2 and x= -3