

Questions from Homework?

2b)
e
f

2b) $4x^4 = 24x^2 + 108$

$$4x^4 - 24x^2 - 108 = 0$$

$$4(x^4 - 6x^2 - 27) = 0$$

Let $s = x^2$

$$4(s^2 - 6s - 27) = 0$$

$$4(s-9)(s+3)$$

$$4(x^2-9)(x^2+3)$$

$$4(x+3)(x-3)(x^2+3) = 0$$

 \therefore solutions are

$x = \pm 3$

no real roots

e) $2x^3 + 162 = 0$

$$2(x^3 + 81) = 0$$

$$x^3 + 81 = 0$$

$$x^3 = -81$$

$$x = \sqrt[3]{-81}$$

$$= (\sqrt[3]{-27})(\sqrt[3]{3})$$

$$= -3(\sqrt[3]{3})$$

f) $2x^4 = 48x^2$

$$2x^4 - 48x^2 = 0$$

$$2x^2(x^2 - 24) = 0$$

Either $2x^2 = 0$

$\Rightarrow x = 0$

OR
$$x^2 - 24 = 0$$
$$x^2 = 24$$

$$x = \pm\sqrt{24}$$

$$= \pm\sqrt{4} \sqrt{6}$$

$$= \pm 2\sqrt{6}$$

Lesson 4.01 - Solving Polynomial Equations Part 2



Learning Goals:

- I can solve polynomial equations using technology

$$ax^2 + bx = c$$

$$4a^2x^2 + 4abx = 4ac$$

$$4a^2x^2 + 4abx + b^2 = b^2 + 4ac$$

$$(2ax + b)^2 = b^2 + 4ac$$

$$2ax + b = \sqrt{b^2 + 4ac}$$

Example

Use graphing technology ( **desmos** or GeoGebra) to solve, to the nearest hundredth (2 decimal places).

$$\frac{21x^3 - 58x^2 + 10}{f(x)} = \frac{-18x^4 - 51x}{g(x)}$$

Method 1

- move everything to one side.
- look for x-intercepts

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

$$x = -2.712$$

$$\text{or}$$

$$x = -0.164$$

Method 2

- graph each separately
- look for intersection points

Homework:

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

* do #8 first

** $x \in W$ means x is a Whole number $\{0, 1, 2, 3, 4, 5, \dots\}$

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

