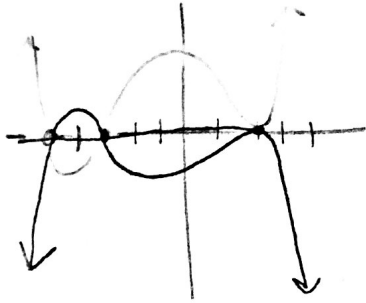


Polynomial Review pg.23 #1

① $x = -3, -5, 2$ multiplicity 2

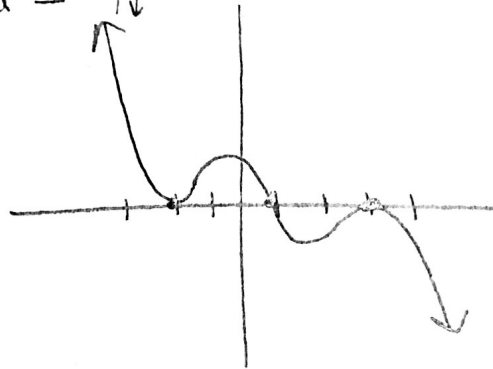
Even - $\downarrow\downarrow$



- a. Degree 4
- b. x-intercepts $-3, -5, 2$ mult 2
- c. y-int $(0, -12)$

② $x = 3$ multiplicity 2 $x = 1$ $x = -2$ multiplicity 2

Odd - $\uparrow\downarrow$



- a. Degree 5
- b. x-intercepts $3, 1, -2$ mult 2
- c. y-int $(0, 6)$

③ $7x^5 + 3x^9 - 2x + 4 - 5x^2 + 2x - 4$

$7x^5 + 3x^9 - 5x^2$

a. Standard Form = $3x^9 + 7x^5 - 5x^2$

- b. 9th Degree
- c. terms: trinomial

④
$$\begin{array}{r} 3 \overline{) -4 \quad 9 \quad 10 \quad -2 \quad 17} \\ \underline{ -4 \quad -3 \quad 1 \quad 1 \quad 20} \end{array}$$

or $-4(3)^4 + 9(3)^3 + 10(3)^2 - 2(3) + 17 = 20$

⑥
$$\begin{array}{r} 2x-3 \overline{) 2x^4 - 5x^3 + 7x^2 + 2x + 4} \\ \underline{-(2x^4 + 3x^3)} \\ -2x^3 + 7x^2 + 2x + 4 \\ \underline{+(2x^3 + 3x^2)} \\ 4x^2 + 2x + 4 \\ \underline{-(4x^2 + 6x)} \\ 8x + 4 \\ \underline{-(8x + 12)} \\ 16 \end{array}$$

⑤
$$\begin{array}{r} -2 \overline{) 1 \quad 3 \quad 0 \quad -3 \quad -10} \\ \underline{ -2 \quad -2 \quad 4 \quad -2} \\ 1 \quad 1 \quad -2 \quad 1 \quad -12 \end{array}$$
 No

⑦ $(x-2)(x+1)(x-3)^2$
 $x^2 + 1x - 2x - 2 \quad (x-3)(x-3)$
 $(x^2 - 1x - 2)(x^2 - 6x + 9)$

$$\begin{array}{r} x^4 - 1x^3 - 2x^2 \\ -6x^3 + 6x^2 + 12x \\ 9x^2 - 9x - 18 \\ \hline x^4 - 7x^3 + 13x^2 + 3x - 18 \end{array}$$

$$\begin{array}{r} 8) -3 \mid 1 \quad -1 \quad -11 \quad 3 \\ \downarrow \quad -3 \quad 12 \quad -3 \\ \hline 1 \quad -4 \quad 1 \quad 0 \end{array}$$

$$x^2 - 4x + 1 = 0$$

$$x = -3 \qquad 2 \pm \sqrt{3}$$

$$\frac{+4 \pm \sqrt{16 - 4(1)(1)}}{2(1)}$$

$$\frac{4 \pm \sqrt{12}}{2} = \frac{4 \pm 2\sqrt{3}}{2}$$

$$\begin{array}{l} 9) (x-2)(x+1) \\ x^2 + 1x - 2x - 2 \\ x^2 - 1x - 2 \end{array}$$

$$\begin{array}{l} x = 1 + 3i \quad x = 1 - 3i \\ \text{-Sum} \quad \text{+ product} \\ -2 \quad 1 - 9i^2 \\ \quad \quad (-1) = 1 - (-9) = 10 \end{array}$$

$$\begin{array}{r} (x^2 - x - 2)(x^2 - 2x + 10) \\ x^4 - x^3 - 2x^2 \\ -2x^3 + 2x^2 + 4x \\ + 10x^2 - 10x - 20 \\ \hline x^4 - 3x^3 + 10x^2 - 6x - 20 \end{array}$$

$$10) x^4 - 3x^3 - 3x^2 + 7x + 6 = 0$$

$$\frac{\pm 1 \pm 2 \pm 3 \pm 6}{\pm 1} = \pm 1$$

$$\begin{array}{r} -1 \mid 1 \quad -3 \quad -3 \quad 7 \quad 6 \\ \downarrow \quad -1 \quad 4 \quad -1 \quad -6 \\ \hline 1 \quad -4 \quad 1 \quad 6 \quad 0 \end{array}$$

$$1x^3 - 4x^2 + 1x + 6$$

$$\begin{array}{r} -1 \mid 1 \quad -4 \quad 1 \quad 6 \\ \downarrow \quad -1 \quad 5 \quad -6 \\ \hline 1 \quad -5 \quad 6 \quad 0 \end{array}$$

$$\begin{array}{r} 2 \mid 1 \quad -5 \quad 6 \quad 0 \\ \downarrow \quad 2 \quad -6 \quad 0 \\ \hline 1 \quad -3 \quad 0 \quad 0 \end{array}$$

$$\begin{array}{r} 3 \mid 1 \quad -3 \quad 0 \\ \downarrow \quad 3 \quad 0 \\ \hline 1 \quad 0 \quad 0 \end{array}$$

$$\begin{array}{l} x = -1 \\ x = -1 \\ x = 2 \\ x = 3 \end{array}$$