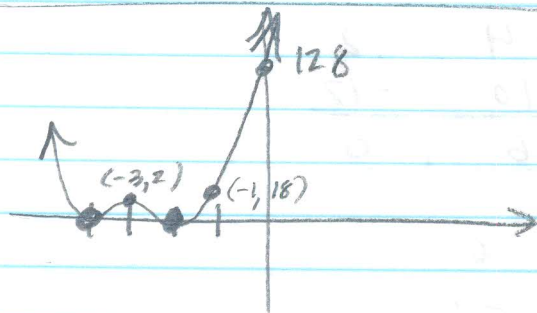


Polynomials Review WS 1

①



$$f(0) = 2(4)(16) = 128$$

$$f(-1) = 2(1)(9) = 18$$

$$f(-3) = 2(1)(1) = 2$$

②

$$\begin{array}{r|rrrr} 2 & 1 & -8 & 5 & +14 \\ & & 2 & -12 & -14 \\ \hline & 1 & -6 & -7 & | 0 \end{array}$$

$$x^2 - 6x - 7$$

$$(x-2)(x-7)(x+1)$$

③

$$\begin{array}{r|rrrrrr} -1 & 1 & -3 & 0 & 3 & -1 \\ & & -1 & 4 & -4 & 1 \\ \hline & 1 & -4 & 4 & -1 & | 0 \end{array}$$

$$\begin{array}{r|rrrr} 1 & 1 & -4 & 4 & -1 \\ & & 1 & -3 & 1 \\ \hline & 1 & -3 & 1 & | 0 \end{array}$$

$$x^2 - 3x + 1 = 0$$

$$x = \frac{3 \pm \sqrt{5}}{2}$$

④

$$\begin{array}{r|rrrr} 3 & 2 & -3 & -11 & 6 \\ & & 6 & 9 & -6 \\ \hline & 2 & 3 & -2 & | 0 \end{array}$$

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

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

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

$$\textcircled{5} \quad \begin{array}{r|rrrrrr} -2 & 1 & -3 & -3 & 9 & -4 & 12 \\ & & -2 & 10 & -14 & 10 & -12 \\ \hline & 1 & -5 & 7 & -5 & 6 & 0 \end{array}$$

$$\begin{array}{r|rrrr} 2 & 1 & -5 & 7 & -5 & 6 \\ & & 2 & -6 & 2 & -6 \\ \hline & 1 & -3 & 1 & -3 & 0 \end{array}$$

$$\begin{array}{r|rrrr} 3 & 1 & -3 & 1 & -3 \\ & & 3 & 0 & 3 \\ \hline & 1 & 0 & 1 & 0 \end{array}$$

$$x^2 + 1 = 0$$

$$x^2 = -1$$

$$x = \pm i$$

$$x = \pm 2, 3, \pm i$$

$$\textcircled{6} \quad \text{sum} = \frac{2}{4} + \frac{3}{4} = \frac{5}{4} = \frac{-b}{a} = \frac{10}{8}$$

$$\text{product} = \frac{3}{8} = \frac{c}{a}$$

$$\left. \begin{array}{l} a = 8 \\ b = -10 \\ c = 3 \end{array} \right\}$$

$$y = 8x^2 - 10x + 3$$

$$\textcircled{7} \quad 3, 2+i, 2-i$$

$$\text{sum} = \frac{6}{1} = \frac{-b}{a}$$

$$\text{p.p.} : (6+3i) + (6-3i) + (5) = \frac{17}{1} = \frac{c}{a}$$

$$\text{product} = \frac{15}{1} = \frac{-d}{a}$$

$$\left. \begin{array}{l} a = 1 \\ b = -6 \\ c = 17 \\ d = -15 \end{array} \right\}$$

$$y = x^3 - 6x^2 + 17x - 15$$