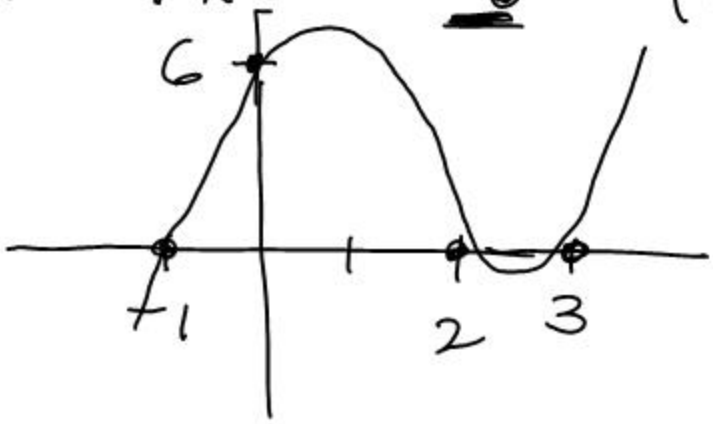
Classwork

(1) $x^3 - 4x^2 + x + 6 = (x-2)(x+1)(x-3)$

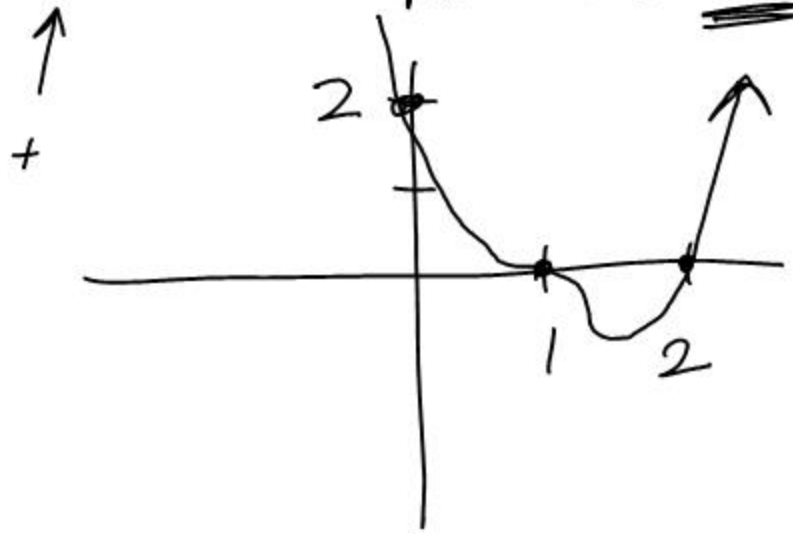


zeros

$-1 + 2 + 3 = 4$

$(-1)(2)(3) = -6$

(#2) $x^4 - 5x^3 + 9x^2 - 7x + 2 = (x-1)^3(x-2)$

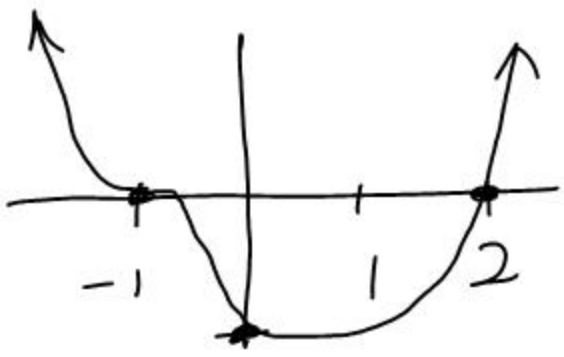


zeros

$1 + 1 + 1 + 2 = 5$

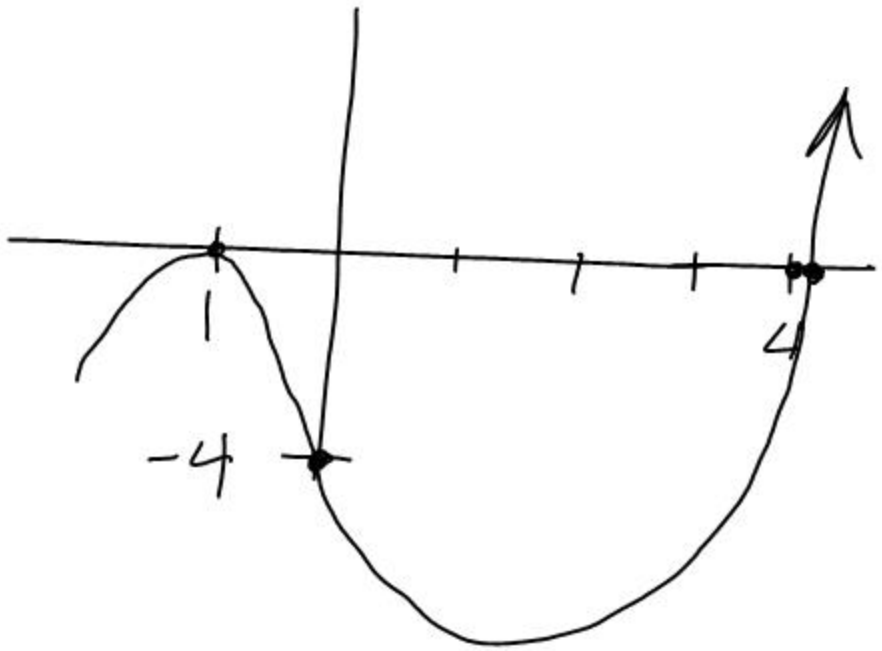
$(1)(1)(1)(2) = 2$

(#3) $x^4 + 1x^3 - 3x^2 - 5x - 2 = (x+1)^3(x-2)$

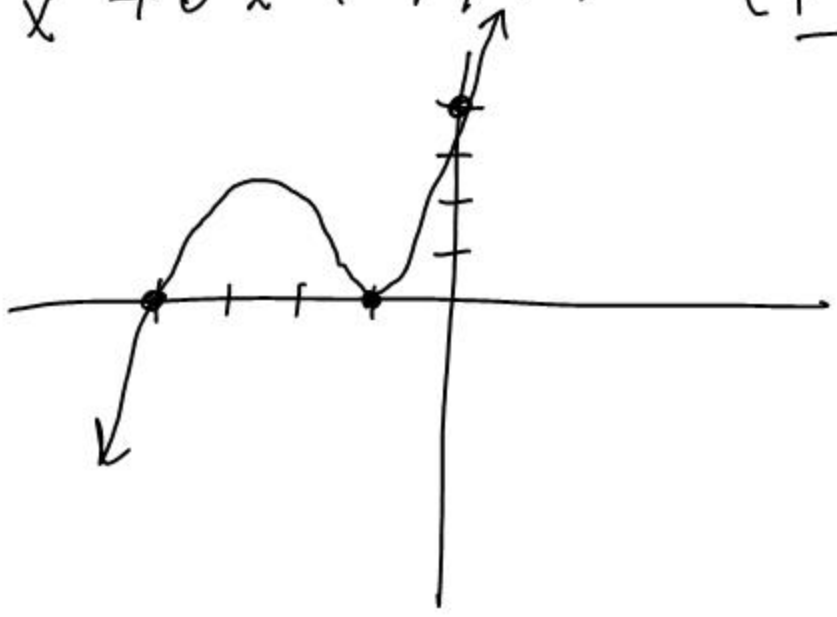


$-1 + -1 + -1 + 2 = -1$

#4 $+x^3 - 2x^2 - 7x - 4 = (x+1)^2(x-4)$

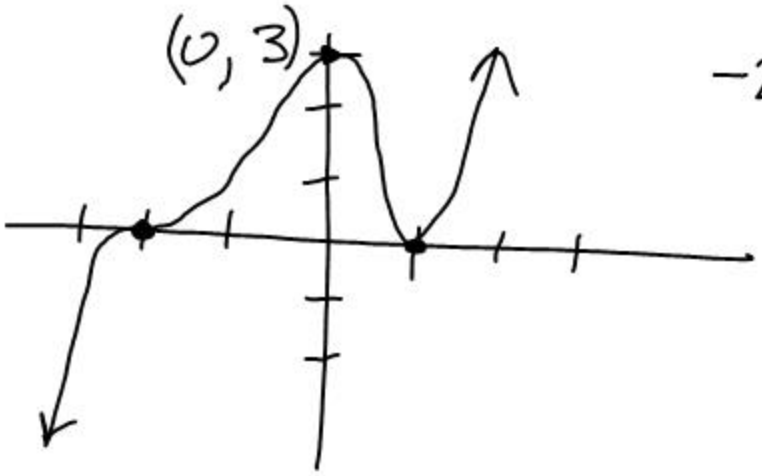


#5 $x^3 + 6x^2 + 9x + 4 = (x+1)^2(x+4)$



Viete's Theorem

Write the polynomial for this graph



$-2 + -2 + -2 + 1 = -5$

$$f(x) = a(x+2)^3(x-1)^2$$

$$a(0+2)^3(0-1)^2 = 3 \longleftarrow$$

$$a = 3/8$$

$$f(x) = \frac{3}{8}(x+2)^3(x-1)^2$$

$(x+2)^3$

$(x+2)(x+2)(x+2)$

$(x+2)(x^2+4x+4)$

x^3+4x^2+4x

$2x^2+8x+8$

$x^3+6x^2+12x+8$

$(x-1)^2$

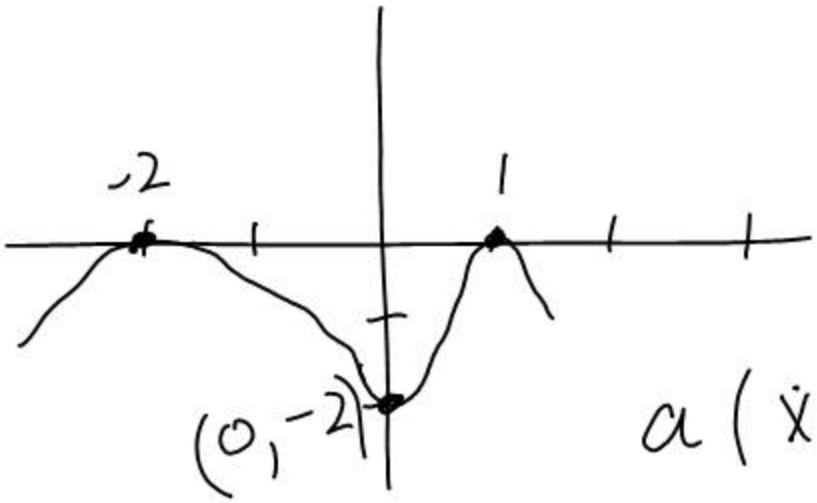
$(x-1)(x-1)$

x^2-2x+1

$$f(x) = \frac{3}{8}\left(x^3 + 6x^2 + 12x + 8\right)\left(x^2 - 2x + 1\right)$$

$$x^5 - 2x^4 + x^3$$
$$6x^4 - 12x^3 + 6x^2$$
$$12x^3 - 24x^2 + 12x$$
$$8x^2 - 16x + 8$$

$$\frac{3}{8}\left(x^5 + 4x^4 + x^3 - 10x^2 - 4x + 8\right)$$



$$a(x+2)^2(x-1)^2$$

$$a(0+2)^2(0-1)^2 = -2$$

$$a(4)(1) = -2$$

$$a = \frac{-1}{2}$$

$$-\frac{1}{2}(x+2)^2(x-1)^2$$

HW Quiz 9/21

(1) Sketch: $y = x^3 - 2x^2 - 7x - 4$

(2) Write a polynomial for the graph.