

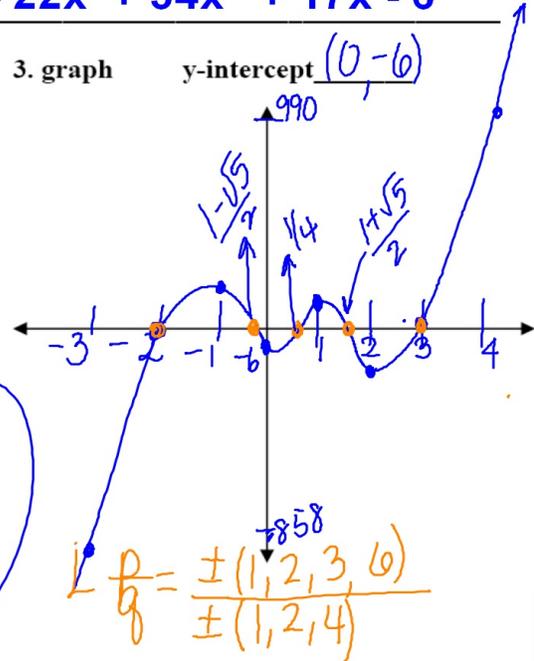
Find all zeros of the function $f(x) = 4x^5 - 9x^4 - 22x^3 + 34x^2 + 17x - 6$

1. total number of zeros 5

3. graph y-intercept $(0, -6)$

2. upper bound 4 lower bound -3

	4	-9	-22	34	17	-6
1	4	-5	-27	7	24	+18
2	4	-1	-24	-14	-11	-28
3	4	3	-13	-5	2	0
4	4	7	6	58	249	990
-1	4	-13	-9	43	-26	20
-2	4	-17	12	10	-3	0
-3	4	-21	41	-89	284	-858



$f(x) = 4x^4 + 3x^3 - 13x^2 - 5x + 2$ (from 3 is a zero) try: $\pm(\frac{1}{4}, \frac{1}{2}, \frac{3}{4})$

zero $-2 \mid 4 \quad 3 \quad -13 \quad -5 \quad +2$

	4	3	-13	-5	+2
		-8	10	6	-2
	4	-5	-3	1	0

$4x^3 - 5x^2 - 3x + 1 = 0$ $\frac{p}{q} = \frac{\pm(1)}{\pm(1, 2, 4)}$

$\frac{1}{4} \mid 4 \quad -5 \quad -3 \quad 1$

	4	-5	-3	1
		1	-1	-1
	4	-4	-4	0

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

$x^2 - x - 1 = 0$

$x = \frac{1 \pm \sqrt{1 - 4(-1)}}{2}$

$x = \frac{1 \pm \sqrt{5}}{2}$

4. Zeros: $-2, 3, \frac{1}{4}, \frac{1 \pm \sqrt{5}}{2}$