Name: KEY Date: _____ Period: _____

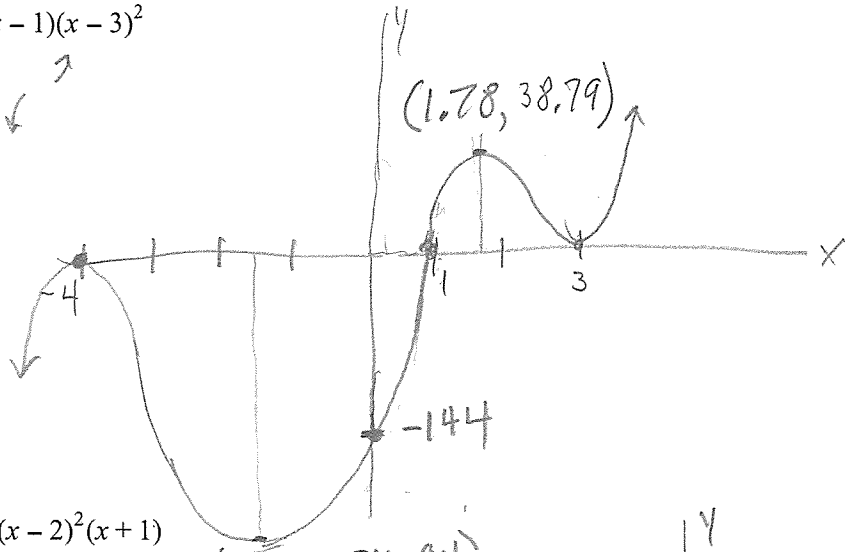
Advanced Algebra II Honors: Sketching Higher Degree Polynomials

Draw a sketch of the polynomials. Include the x and y intercepts and the correct end behavior.

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

deg = 5 ↙ ↗

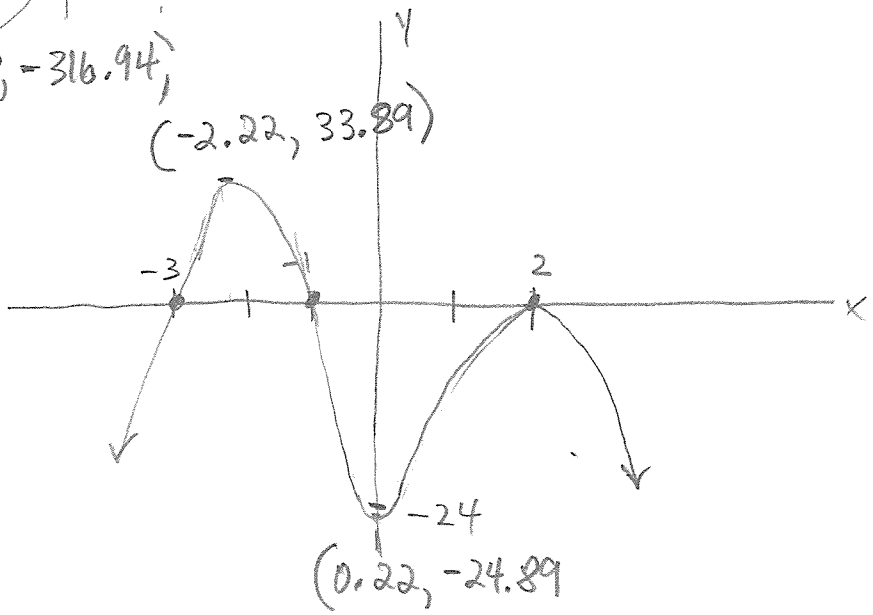
y-int:
$f(0) = 4^2(-1)(-3)^2$
$= -144$



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

deg = 4 ↙ ↘

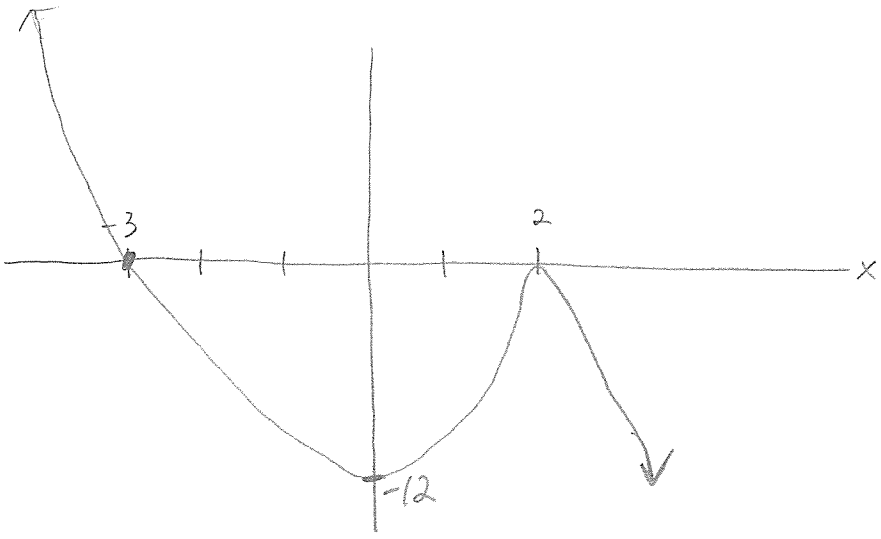
y-int:
$f(0) = -2(3)(4)(1)$
$= -24$
$(0, -24)$



3. $f(x) = -(x+3)(x-2)^2$

deg = 3
LC = -

y-int =
$f(0) = -(3)(4)$
$= -12$



4. $f(x) = x^4 + 6x^3 + 9x^2 - 4x - 12$

$f(1) = 0$

1	1	6	9	−4	−12
		1	7	16	12
	1	7	16	12	0

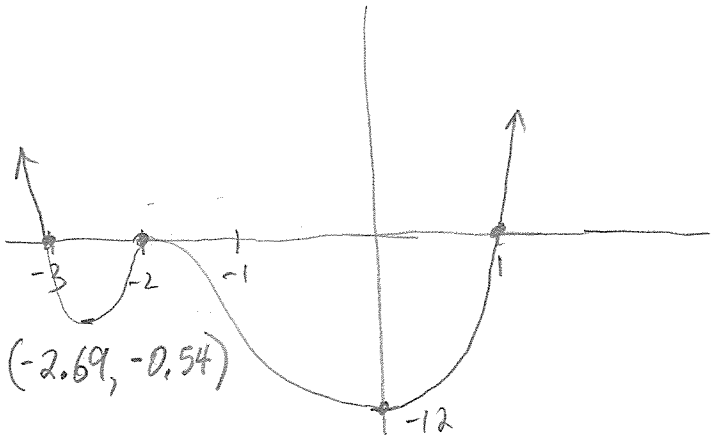
$x^3 + 7x^2 + 16x + 12$

−3	1	7	16	12
		−3	−12	−12
	1	4	4	0

$x^2 + 4x + 4$

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

y-int = −12



5. $f(x) = -2x^3 - x^2 + 14x - 3$

$f(-3) = 0$

−3	−2	−1	14	−3
		6	−15	3
	−2	5	−1	0

$-2x^2 + 5x - 1$

$x = \dfrac{-5 \pm \sqrt{25 - 4(-2)(-1)}}{2(-2)}$

$= \dfrac{-5 \pm \sqrt{17}}{-4}$

0.219 2.28

y-int = −3

$(x+3)$