

1. (5 points) Form a polynomial whose real zeros are -3, 0, 4 and whose degree is 3. Do not simplify!

$$(x+3)(x)(x-4)$$

do $(x-3)$ and $(x+4)$ ~ -1 pt ea.

adding extra - (-2 pt)

2 is a zero - (-1 pt)

sign on a zero - (-1 pt)

2. (24 points) Consider the polynomial function $f(x) = 2(x-5)(x+1)$.

- a. (6 pts) List each real zero and its multiplicity.

zeros	5	-11
multiplicity	1	8

+3 both zeros

+3 both multiplicities

-1 missing a box

-3 - not telling me which does which

- b. (6 pts) Determine whether the graph of f crosses or touches the x-axis at each x-intercept.

zeros	5	-11
Cross or touch	Cross	touch

+3 for first

+3 for second

-2 wrong zeros

- c. (6 pts) Determine the maximum possible number of turning points on the graph of f .

$$\text{max. \# turn. pts.} = 9 - 1 = 8$$

(+3) used degree of poly (9)

(+3) did previous minus 1

- d. (6 pts) Determine the end behavior of the polynomial (what power function does the end behavior resemble?)

end behavior resembles x^9 (-1) wrong sign

or
 $2x^9$