Adv Alg

Name_____
Date_____Pd_____

DEGREE, ZEROS, MULTIPLICITIES

I. Identify the lead term, lead coefficient, and degree of each polynomial.

1. $y = 4x^5 + 11x^4 - x^2 - 2$ lead term_____ lead coefficient_____ degree_____

2. $y = -7x^8 + 12x^{10} - 24x^{13} - 2x$ lead term_____ lead coefficient_____degree_____

3. $y = x^3 - x^4 - 2x$ lead term_____ lead coefficient_____ degree_____

II. Identify the lead coefficient and degree of each factored polynomial [hint for degree: add up the multiplicities]

4. $y = (x-3)^2(x+1)^2(x-2)$ lead coefficient_____ degree _____

5. $y = 5x(x+7)(x-6)(x+3)$ lead coefficient_____ degree _____

6. $y = -9x^3(x+4)^5(x-5)^2(x-1)$ lead coefficient_____ degree _____

III. Identify the zeros and their corresponding multiplicity for each factored polynomial. Circle whether the graph will cross or bounce at each zero.

7. $y = (x-1)^2(x-3)^3(x+12)$ zeros: _____ => multip _____ => cross / bounce
zeros: _____ => multip _____ => cross / bounce
zeros: _____ => multip _____ => cross / bounce

8. $y = x^2(x+19)(x+4)^3(x-14)$ zeros: _____ => multip _____ => cross / bounce
zeros: _____ => multip _____ => cross / bounce
zeros: _____ => multip _____ => cross / bounce
zeros: _____ => multip _____ => cross / bounce

IV. Determine the end behavior of the graph by first identifying the lead coefficient and degree.

9. $y = -2(x+1)^2(x-2)^3(x+2)$ lead coefficient _____ degree_____ => end behavior _____

10. $y = 6x(x-5)(x+9)^2(x+1)$ lead coefficient _____ degree_____ => end behavior _____

11. $y = (x-1)^2(x-3)^7(x+12)$ lead coefficient _____ degree_____ => end behavior _____

12 $y = -8x(x+4)^{11}(x-5)^2(x-1)$ lead coefficient _____ degree_____ => end behavior _____

V. Put it all together and graph it.

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

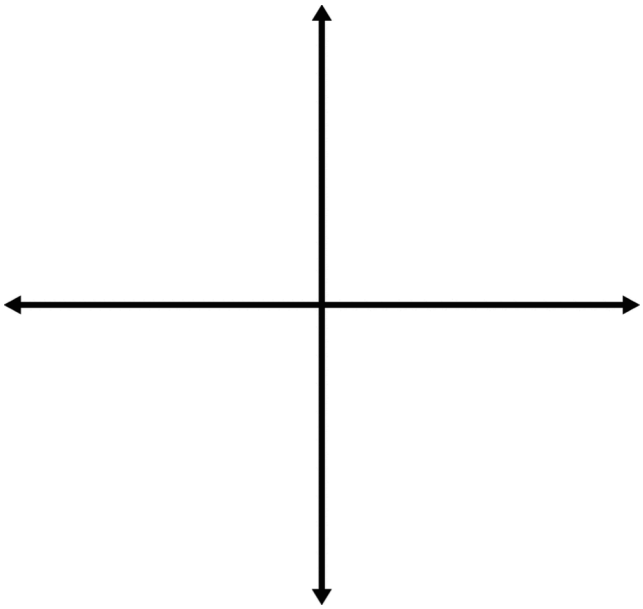
degree _____ lead coefficient _____ => end behavior _____

zeros & multipl. _____ with multip _____ => bounce / cross

_____ with multip _____ => bounce / cross

_____ with multip _____ => bounce / cross

y – intercept [set x = 0] _____



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

degree _____ lead coefficient _____ => end behavior _____

zeros & multipl. _____ with multip _____ => bounce / cross

_____ with multip _____ => bounce / cross

_____ with multip _____ => bounce / cross

_____ with multip _____ => bounce / cross

y – intercept [set x = 0] _____