ALGEBRA 2 HONORS
PROBLEM SET 18

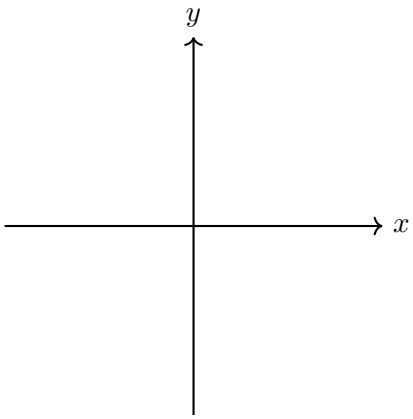
DUE DATE: NOVEMBER 16, 2023

Question 1. For each of the following, find the x-intercepts, the multiplicity of each x-intercept, and sketch a graph of each of the polynomials below:

$f(x) = (x-10)^2(x+5)^{2023}$

x-intercepts:

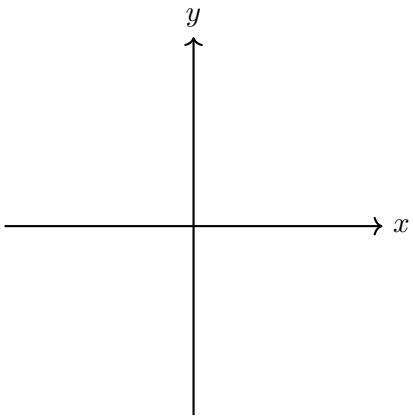
multiplicity:



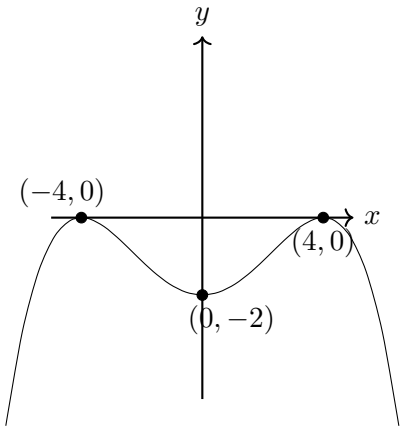
$g(x) = -5x(x+4)^3(x-1)^2$

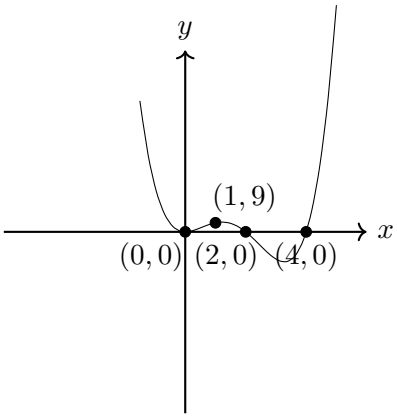
x-intercepts:

multiplicity:

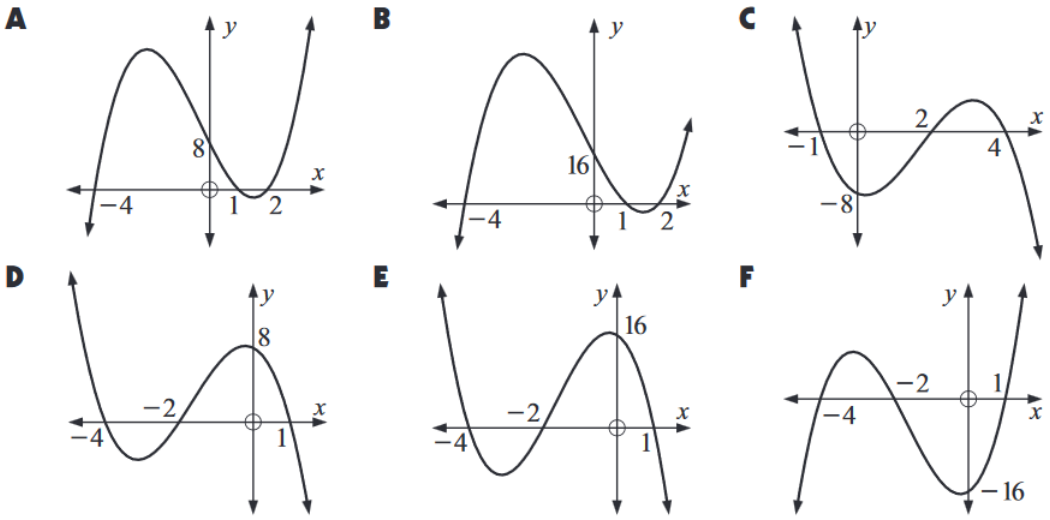


Question 2. Find an equation for each of the following graphs of polynomials (leave it in factored form).
Hint: start with $f(x) = a(x - r_1)^{e_1}(x - r_2)^{e_2}(x - r_3)^{e_3} \cdots (x - r_n)^{e_n}$ where the $r_1, r_2, \ldots, r_n$ are the x-intercepts and exponents $e_1, \ldots, e_n$ are the multiplicities.





Question 3. Match the given graphs to the corresponding polynomial equations:



$f(x) = 2(x - 1)(x + 2)(x + 4)$

$g(x) = 2(x - 1)(x - 2)(x + 4)$

$h(x) = -2(x - 1)(x + 2)(x + 4)$

$p(x) = (x - 1)(x - 2)(x + 4)$

$q(x) = -(x - 1)(x + 2)(x + 4)$

$p(x) = -(x + 1)(x - 2)(x - 4)$