

MAC 1140

LA session

Week 4

- Determine which of the following are polynomial functions. Explain why or why not.
 - $f(x) = x^2 + 3x + 2x^{-1} - 5$
 - $f(x) = -2x^3 + \sqrt{3}x^2 + \pi x + 1$
 - $f(x) = \frac{x^2 + 3x}{2x + 1} + 4x - 7$
- Use transformations to graph $f(x) = 2(x-3)^4 - 4$. Plot accurately 3 points on the graph of a basic function (power function) and use them to perform transformations. Do one transformation at a time. Write the formula for each function.
- Write a formula for a polynomial function of degree 5 with the leading coefficient 4 and following zeros and their multiplicities: -1, multiplicity 2; 2 multiplicity 1.
- For the given polynomial function $f(x)$
 - list the zeros and their multiplicities
 - determine whether the graph crosses or touches the x axis at each zero
 - determine the end behavior of the function, that is, find the power function ($y = ax^n$) that the graph of f resembles for large values of $|x|$
 - use (i)-(iii) to sketch the graph of the function
 - $f(x) = x^2(x+3)(x-5)$
 - $f(x) = -2(x+1)^2(x+4)^3(x^2+2)$
 - $f(x) = -3(x-1)^4(x+3)^5(x+2)$
- For the given polynomial function $f(x)$
 - find the zeros (use techniques from sec 5.5)
 - write the function in a factored form (use powers for multiple factors)
 - determine the multiplicities of each zero
 - determine whether the graph crosses or touches the x axis at each zero
 - determine the end behavior of the function, that is, find the power function ($y = ax^n$) that the graph of f resembles for large values of $|x|$
 - use (i)-(v) to sketch the graph of the function
 - $f(x) = 2x^3 + 10x^2 - 2x - 10$
 - $f(x) = 4x^4 + 7x^2 - 2$
 - $f(x) = x^4 + x^3 - 3x^2 - x + 2$