

Math 32, Spring 2010, Section 101
Worksheet 6

Work through the following problems in groups of about four. Take turns writing; everyone should get a chance to write for some of the problems. It's more important to understand the problems than to do all of them.

1. Graph the following polynomials. Label the x - and y -intercepts

(a) $y = x^2 + 1$ (b) $y = (x - 1)(x - 2)^2$ (c) $y = (x - 1)(x - 2)^3$

2. Graph the following rational functions. Specify the x -intcepts, y -intercepts, and any asymptotes.

(a) $y = \frac{-1}{x + 4}$ (c) $y = \frac{x}{(x + 1)^2}$
(b) $y = \frac{-2x^2}{x^2 - 1}$ (d) $y = \frac{(x - 4)(x + 2)}{(x - 1)(x - 3)}$

3. Graph the following rational functions, specifying everything that seems relevant. (Hint: simplify first! but keep the domain of the original function)

(a) $y = \frac{(x - 1)(x - 2)}{(x - 2)(x - 3)(x - 4)}$ (b) $y = \frac{x^2 - 9}{(x - 3)^2}$

4. Give an example of a function that isn't a rational function, and graph it.

5. Find all solutions to the equation $2^{2x} + 5 \cdot 2^x - 6 = 0$. (Hint: make a substitution.)