

**Math 111 Quiz #9**  
**June 1, 2011**

Name: \_\_\_\_\_

Show all work and answers on a separate sheet. Simplify your answers as much as possible. No calculators.

- (1 pt.) For the polynomial  $p(x) = -8x^5 + 2x^2 - 1.2x + 7$ , what is the long-run behavior as  $x \rightarrow \infty$ ? (What does  $p(x)$  go to as  $x \rightarrow \infty$ ?)
- (3 pts.) Sketch  $g(x) = 2(x + 3)(x^2 - 4)$ . Be sure to draw a nice set of axes and label all  $x$ -intercepts and  $y$ -intercepts.
- Consider  $f(x) = \frac{2x-8}{x^2+5x}$  for parts (a)-(c) below.
  - (2 pts.) Find all the  $x$ -intercepts and  $y$ -intercepts (if any). Write your answers as points.
  - (1 pts.) Does  $f(x)$  have a horizontal asymptote? If so, what is the equation?
  - (1 pts.) Does  $f(x)$  have any vertical asymptotes? If so, write the equation(s).
- (2 pts.) Find the simple interest rate on a loan in which you borrowed \$4000 for 2 years and had to repay a total of \$6000.

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Notes: Simple Interest Formulas:  $I = Prt$ ,  $A = P(1 + rt)$

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