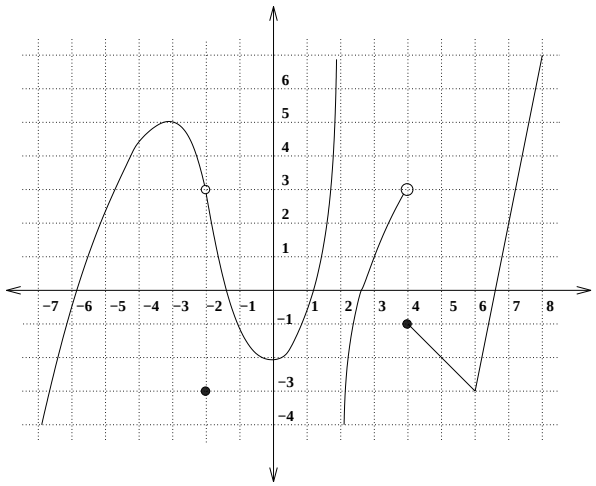
Homework #3 Name: _____

Math 142 Section: _____ Row: _____

This assignment is due by 3:30 pm on February 12, 2008 You can turn it in to me in class or drop it by the office, **Blocker 640D**. Be sure that you follow the homework rules, they can be found on your syllabus. Please work the problems in the order that they are listed.

1. Solve each equation for x.
   (a) $4^{5x} * 4^{-x^2} = 16^{-3}$
   (b) $4^{5x-8} = 1$
2. You start an account with \$1200 when the interest rate was 4.5% interest compounded monthly. At the end of the second year you deposit an additional \$900 into the account when the bank raised the interest rate to 5.25% compounded monthly. What is the balance of the account 6 years after it was started?
3. Find the domains of these functions.
   (a) $y = \log_3(2x - 5)$
   (b) $y = \log_6(5 - x)$
   (c) $y = 3^{\sqrt{x}}$
4. Solve each equation for x.
   (a) $10e^{3x+5} = 50$
   (b) $\log_3(x + 2.5) + \log_3(2x) = 1$
   (c) $\log_3(\log_2(2x + 4)) = 1$
5. Evaluate these limits.
   (a) $\lim_{x\to 3} \dfrac{x^2 - 3x}{x^2 - 7x + 12} =$
   (b) $f(x) = \begin{cases} 3x^2 + 5x + 1 & \text{if } x \le 2 \\ 7 - 3x - x^2 & \text{if } x > 2 \end{cases}$
   $\lim_{x\to 2^+} f(x) =$
   (c) $f(x) = \begin{cases} 3x^2 + 5x + 1 & \text{if } x \le 2 \\ 7 - 3x - x^2 & \text{if } x > 2 \end{cases}$
   $\lim_{x\to 2^-} f(x) =$

For problems 6 and 7, use the graph of $f(x)$ to evaluate these limits.



6. (a) $\lim_{x\to 4^-} f(x) =$
   (b) $\lim_{x\to 4^+} f(x) =$
   (c) $\lim_{x\to 4} f(x) =$
7. (a) $\lim_{x\to -2} f(x) =$
   (b) $\lim_{x\to -3} f(x) =$
   (c) $\lim_{x\to 7} f(x) =$