Solutions to Sample Problems for Exam 1
College Algebra and Trigonometry, Math 123, Secton 3260, Fall 2011
Instructor: Abhijit Champanerkar

- Exam 1 will be held in class on Wednesday Oct 5th.

- Syllabus for Exam 1: 1.10, 2.1, 2.2, 2.3, 2.4, 2.5

- Review for Exam 1 will be held on Monday Oct 3rd.

1. (a) $y = -x/3 + 7/3$ (b) $y = 3x - 4$ (c) $y = -3x/4$.

2. (a) x-intercept $= 3$, y-intercept $= 3$. (b) x-intercept $= 4$, y-intercept $= -3$.

3. (a) \$330 (b) Slope is the incremental cost, y-intercept is the fixed cost.

4. (a) $f(-2) = -6, f(0) = 1, f(2) = -2, f(4) = -3, f(6) = 7, f(8) = 9$.
   (c) Increasing on $(-\infty, 0) \cup (4, \infty)$, Decreasing on $(0, 4)$.

5. $f(2) = 5, f(a) = a^2 + 1, f(a+1) = a^2 + 2a + 2$.

6. (a) $\{x \mid x \geq 4/3\} = [4/3, \infty)$ (b) $\{x \mid x \neq 3\} = (-\infty, 3) \cup (3, \infty)$
   (c) $\{x \mid x > -4\} = [-4, \infty)$

7. (a) $[-7, 10]$ (b) $[-3, 6]$
   (c) $f(-7) = 3, f(-5) = 5, f(0) = -3, f(3) = 1, f(4) = 3, f(7) = 1$.

8. See Classwork 3 solutions on class homepage foro similar problem.

9. (a) -45.67 (b) -58.75 (c) -56.1

10. See Classwork 5 solutions on class homepage for similar problem.

11. (a) Minimum at $x = h = 5/2$, value $k = 3/2$, vertex $= (h, k) = (5/2, 3/2)$ and axis is vertical line $x = h = 5/2$.
    (b) Minimum at $x = h = 5/2$, value $k = -1/4$, vertex $= (h, k) = (5/2, -1/4)$ and axis is vertical line $x = h = 5/2$.
    (a) Maximum at $x = h = -1/2$, value $k = -1/2$, vertex $= (h, k) = (-1/2, -1/2)$ and axis is vertical line $x = h = -1/2$.