**BRONX COMMUNITY COLLEGE**
**of the City University of New York**

**DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE**

MATH 05 Exam 1
Nikos Apostolakis March 9, 2006

Name: _____ Secret Name: _____

**Directions:** You *must* show all your work in the provided space. Simplify your answers whenever possible. Be certain to indicate your final answer clearly.

1. Evaluate: $7 - 3(2 - 3) - 3^2 \div 9 \cdot 3.$

2. Evaluate: $\frac{5}{8} \cdot \frac{24}{-20} \cdot \left(-\frac{10}{6}\right) \cdot \frac{-2}{5}.$

3. Evaluate, if $a = \frac{4}{3}$ and $b = -\frac{7}{6}$: $-5a + 7b$

4. If $a = -3$, $b = 2$, $x = -1$, $y = 3$ and $z = -2$ evaluate each of the following expressions:

   (a) $-2a - 3b + 7x$

   (b) $-b^2 + (z)^2$

   (c) $xy - 3(2a + zb)$

   (d) $\dfrac{a}{2a + 3}$

5. Bob's grade in a class will be determined by the average of the scores in four tests. He got a 95 in the first test, an 87 in the second and an 85 in the third. What score on the fourth test will ensure him a grade of 90 or more?

6. Solve for $x$: $y = -4x - 3$

7. John wants to invest \$10000 in two different plans. Plan A has an annual interest rate of 5% and plan B has an interest rate of 3%. How much should he invest on each plan if he wants at the end of the year to gain interest of \$440?

8. Solve $2(3 - 2x) + 4 \geq -7x + 10$, graph the solution set and express your answer in interval notation.

9. Solve $2(x-5) = 2x + 7.$

10. Solve: $\dfrac{2x-6}{5} + \dfrac{x+17}{10} = 2$

11. The width of a rectangle is ten units less than twice its length. If the perimeter of the rectangle is 100 units, find its dimensions.

12. Solve the following equation

$$|-3x+6|-8=16$$