BRONX COMMUNITY COLLEGE
of the City University of New York

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

MATH 05X — Practice Exam III
Nikos Apostolakis — July 24, 2008

Directions: The following exam consists of TWENTY questions. Each question is worth 5 points. YOU MUST SHOW ALL WORK TO RECEIVE CREDIT FOR YOUR ANSWERS.

1. Evaluate: $2 - \frac{3}{5}(4^2 - 2(-9))$
2. Evaluate: $x\sqrt{x^2 - y}$, when $x = -4$ and $y = 5$.
3. Solve: $3(x + 2) = -5(2x + 17)$
4. Solve: $-2(3x - 5) > x + 10$. Give your answer using interval notation and graph the solution set in the number line.
5. Solve for y: $15x - 6y = -4$.
6. Sketch the graph of $3x - 2y = -6$. Plot at least three solutions.
7. A line passes through the points with coordinates $(-1, 1)$ and $(1, 5)$. Find an equation for this line.
8. Solve the following system:
$$\begin{cases} x - 2y = 3 \\ 2x - 5y = 4 \end{cases}$$
9. The length of a rectangle is 4 cm more than three times its width. If the perimeter of the rectangle is 24 cm find the dimensions of the rectangle.
10. Subtract $(7x^2 - 3x - 7) - (3x^2 - 4x + 5)$
11. Multiply: $(2x - 3)(x^2 + 3x - 5)$
12. Divide: $\dfrac{3x^2 + 9x - 30}{x + 5}$
13. Factor completely: $3y^4 - 48x^4$
14. Factor completely: $6x^2 - 11x + 10$

15. Simplify:

$$\left(\frac{x^{11}y^{-6}}{32x^{-9}y^{14}}\right)^{\frac{2}{5}}$$

Write your answer using only positive exponents.

16. Simplify: $3\sqrt{28} - 4\sqrt{63} + 2\sqrt{50}$

17. Perform the indicated operators:

$$\frac{(2-3i)(4-i)}{1-2i}$$

Write the result in standard $a + bi$ form.

18. Solve $x^2 - 41 = 4x$. Express your answer in simple radical form.

19. One side of a right triangle is 3 inches less than three times the other. The hypotenuse is 13 inches. Find the lengths of the other two sides.

20. Write an equation for the following parabola: