

BRONX COMMUNITY COLLEGE
of the City University of New York

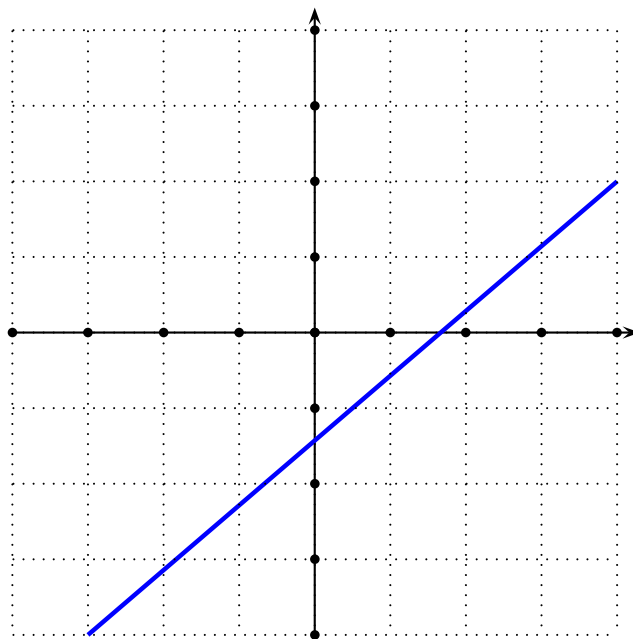
DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

MATH 05X
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Exam 4
July 24, 2008

Directions: You should fully justify your answers. Do all your work on separate paper, and make sure to *print* your name in the first sheet and staple all the sheets together. **Unstapled, loose pieces of paper will not be graded.** This exam is due on Monday, July 27, at 6:00pm.

1. Evaluate: $\frac{3}{5}(5^2 + 2(-9)) - \frac{7}{10}$
2. Evaluate: $(x + y)\sqrt{y^2 - x^2}$, when $x = -12$ and $y = 13$.
3. Solve: $5(-2x + 7) + 2x - 1 = -3(4x - 2) - 3x - 8$
4. Solve: $3(x + 3) - 4 \leq -x + 9$. Give your answer using interval notation and graph the solution set in the number line.
5. Solve for y : $6x + 3y = -9$.
6. Sketch the graph of $y = 2x - 4$. Plot at least three solutions.
7. Find the equation of the line whose graph is shown. Then find its x - and y -intercepts.



8. Solve graphically: $4y \geq 3x - 12$.

9. Solve the following system:

$$\begin{cases} 5x - 2y = -9 \\ 2x + 3y = 4 \end{cases}$$

10. John has \$1.15 all in dimes and nickels. He has a total of 15 coins. How many of each kind of coin does he have?

11. Multiply: $(x^3 - 2x + 1)(3x + 4)$

12. Divide: $\frac{2x^2 + x - 6}{x - 3}$

13. Factor completely: $7xy^4 - 28xy^2$

14. Factor completely: $6x^2 - 11x + 4$

15. Simplify:

$$\left(\frac{8x^{11}y^6}{27x^{-4}y^{18}}\right)^{\frac{2}{3}} \left(\frac{3x^{-5}y^3}{2x^5y^{-2}}\right)^2$$

Write your answer using only positive exponents.

16. Simplify: $\frac{\sqrt{2}(3\sqrt{40} - \sqrt{90} + 7\sqrt{15})}{\sqrt{5}}$.

17. Perform the indicated operators:

$$\frac{(-5 + i)(-4 - 6i)}{1 + i}$$

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

18. Solve $6x^2 - 5x = 6$. Express your answer in simple radical form.

19. One integer is three more than twice an other integer. Find the two integers if their product is 35.

20. Graph: $y = x^2 - 4x - 3$. Indicate the axis of symmetry, the vertex and the x - and y -intercepts.