

BRONX COMMUNITY COLLEGE
of the City University of New York

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

MATH 05X
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Practice Exam IV
July 29, 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: $\frac{3}{25}(9^2 - (-19))$
2. Evaluate: $\sqrt{-a - b^2}$, when $a = -74$ and $b = -5$.
3. Solve: $3(4x + 5) = -7(2x - 1) - 5$
4. Solve: $2(x - 4) \leq 3(x + 1) + 10x$. Give your answer using interval notation and graph the solution set in the number line.
5. Write y in terms of x : $5x - 4y = 20$.
6. Sketch the graph of $4x - 3y = 12$. Plot at least three solutions.
7. A line passes through the points with coordinates $(-2, 18)$ and $(3, 3)$. Find an equation for this line.
8. Solve graphically: $3x + 2y \geq 6$
9. Solve the following system:
$$\begin{cases} 3x - y = -11 \\ 2x - 5y = -16 \end{cases}$$
10. At 2 pm, two cars leave heading in opposite directions. If one car is traveling at 54 mph and the other at 66 mph, what time is it when they are 480 miles apart?
11. Multiply: $(2x - 1)(x^3 + 3x^2 - 5x - 2)$
12. Divide: $\frac{x^2 - 2x - 15}{x - 5}$
13. Factor completely: $6x^3 - 24x$
14. Factor completely: $10x^2 - x - 2$

15. Simplify:

$$\left(\frac{27x^{11}y^6}{x^2y^{18}}\right)^{\frac{1}{3}}$$

Write your answer using only positive exponents.

16. Simplify: $3\sqrt{28} - 4\sqrt{500} + 2\sqrt{45}$

17. Divide:

$$\frac{2+i}{1-2i}$$

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

18. Solve $x^2 - 6x = -7$. Express your answer in simple radical form.

19. The hypotenuse of a right triangle is 1 inch more than one of the legs. The other leg is 7 inches. Find the lengths of all three sides.

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