

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

**DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE**

MATH 06  
Nikos Apostolakis

Exam 2  
November 3, 2009

Name: \_\_\_\_\_

**Directions:** Write your answers in the provided space. To get full credit you *must* show all your work. Simplify your answers whenever possible. Be certain to indicate your final answer clearly. **Each problem is worth 5 points**

Perform the indicated operators and simplify the result:

1.  $\frac{7}{x-4} - \frac{11}{x^2+3x-28}$

2.  $\frac{3a+6}{a^2-a-12} \div \frac{a^2+7a+10}{a^2+a-20}$

3. Simplify:  $\frac{\frac{x}{(x+3)} - \frac{2}{x-3}}{\frac{5}{x^2-9}}$

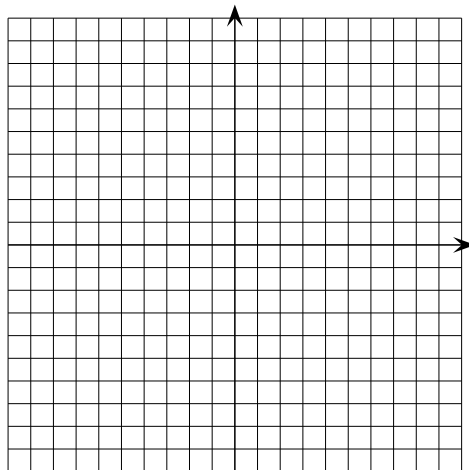
Solve for  $x$ :

4.  $\sqrt{x+11} - 5 = x$

5.  $\frac{2}{x-2} + \frac{15}{x^2-7x+10} = \frac{3}{x-5}$

6.  $\frac{x}{x^2-5x+6} = \frac{2x-3}{x-3}$

7. Graph the parabola  $y = x^2 - 6x + 4$ . Show the vertex and the axis of symmetry. Also find the  $y$ -intercept.

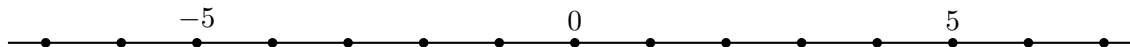


8. Solve for  $x$ :  $3x^2 - 9 = 4x$ . Express the solutions in the simplest radical form.

9. Find the center and the radius of the circle with equation:  $x^2 + y^2 + 10x - 6y = 15$ .

10. Find the equation of the circle that has center  $(-1, 2)$  and passes through the point  $(2, 1)$ .

11. Solve for  $x$ :  $|2 - 5x| \leq 8$ . Graph the solution set in the real number line.



Simplify:

12. A.  $3\sqrt{45} - \sqrt{500} + 4\sqrt{20}$

B.  $(\sqrt{5} - 2)^2$

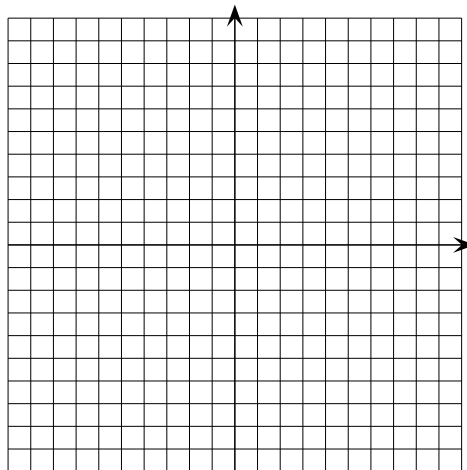
13. A.  $27^{-\frac{2}{3}}$

B.  $\left(\frac{16x^{17}y^{13}}{x^9y}\right)^{\frac{1}{4}}$

14. A.  $\log_2 \frac{1}{32}$

B.  $\log_{25} \frac{1}{5}$

15. Solve graphically:  $2x - 5y < 10$ .



16. Divide  $\frac{11 - 13i}{5 + 2i}$ . Express your answer in the form  $a + bi$  where  $a$  and  $b$  are real numbers.

17. Prove that  $\sqrt{3 + 4i} = 2 + i$

18. Solve for  $x$ :  $x^2 - 2x + 2 = 0$

19. Solve for  $x$ :  $8^{2-x} = \frac{1}{32}$

20. Use a table of values to graph  $y = \left(\frac{1}{3}\right)^x$ .

