

Name: \_\_\_\_\_ Class: \_\_\_\_\_ Date: \_\_\_\_\_

**ALGEBRA 2 CP FINAL EXAM REVIEW: All work must be on SEPARATE paper.**

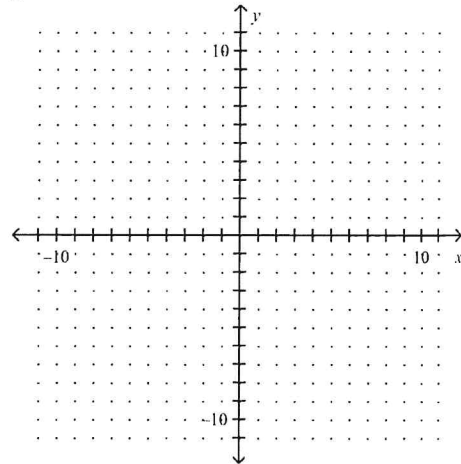
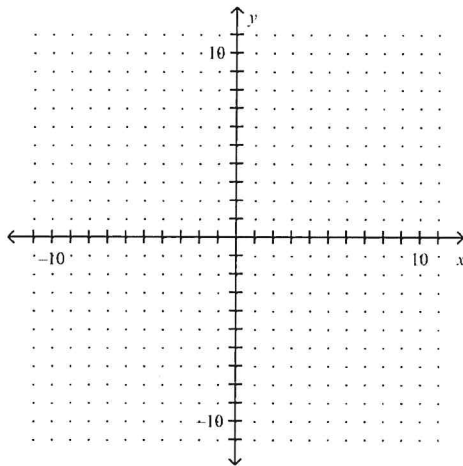
1. Write an equation to model the following situation.  
A music club membership costs \$29.00 and \$10.00 per CD.

6. Solve using elimination.  
 $3x - 7y = 20$   
 $-11x + 10y = 5$

2. Write an equation in slope-intercept form of the line that passes through the point  $(-3, -4)$  and is parallel to the line  $y = 6x + 5$ .

7. Graph the system of linear inequalities:  
 $y \geq x + 4$   
 $y \leq -2x + 4$

3. Graph the equation  $y = -\frac{2}{3}x - 2$ .



4. Find the slope and y-intercept of the graph of  $5x - 4y = 20$ .

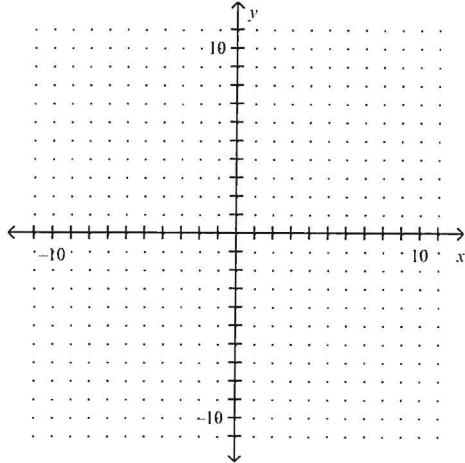
8. Find the *vertex* of the parabola.  
 $y = -3x^2 + 12x - 8$

5. Solve using substitution.  
 $3x + 4y = -3$   
 $2x + y = 8$

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9. Graph the quadratic function. Label the vertex and axis of symmetry.

$$y = x^2 + 3x - 2$$



10. Factor the expression:  $4x^2 - 18x$ .
11. Factor the expression:  $9x^2 - 36$ .
12. Factor the expression:  $4x^2 - 6x - 10$ .
13. Factor the expression:  $5x^2 - 42x + 16$ .
14. Solve by factoring:  $3x^2 = x + 14$ .
15. Solve by factoring:  $x^2 - 18x + 81 = 0$
16. Solve by taking square roots:  
 $2(x + 4)^2 + 14 = 62$
17. Solve using the quadratic formula:  
 $x^2 + 7x - 1 = 0$ .
18. Solve using the quadratic formula:  
 $3x^2 + 5x = -5$ .
19. Simplify:  $(-2 + 4i) - (3 + 9i)$ .
20. Simplify:  $\sqrt{-121}$ .
21. Simplify:  $(5h^3 + 8h - 9) - (6h^3 + 6h - 4)$ .
22. Simplify:  $(y + 4)(y^2 - 2y + 1)$ .
23. Factor completely:  $2z^8 - 6z^6 - 80z^4$ .
24. Factor completely:  $81x^4 - 16$ .

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25. Solve:  $4x^3 - 8x^2 + 3x - 6 = 0$ .

34. Simplify:  $\left(\frac{2}{3}\right)^{-3}$ .

26. Divide using synthetic division:  
 $(2x^4 - 7x^2 - 6x + 15) \div (x - 4)$

35. Simplify:  $81^{-1/4}$ .

27. Divide using synthetic division:  
 $(2x^4 - 6x^3 - 24x - 30) \div (x + 3)$

36. Simplify:  $125^{4/3}$ .

28. Simplify:  $\sqrt{12} + \sqrt{48}$ .

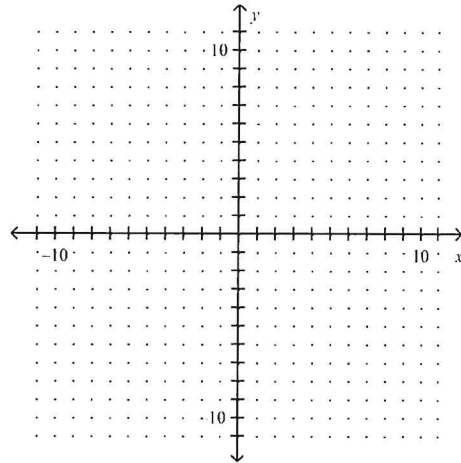
37. Solve:  $\sqrt{x + 72} = x$ .

29. Simplify:  $\sqrt[3]{x^6 y^{30}}$ .

38. Solve:  $\sqrt[3]{2x - 3} = 3$ .

30. Simplify:  $\sqrt[4]{18x^8 y^9 z^3}$ .

39. Graph the function  $f(x) = \sqrt{x} + 3$ .



31. Simplify:  $(-3t^5 r^8)^4$ .

32. Simplify:  $(8x^3)^2 (2x^2)^3$ .

33. Multiply:  $(3x + 2)^2$ .

40. Find an equation for the inverse of the relation  $y = 5x - 3$ .

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41. Solve  $3^{2x+14} = 9$ .

42. Rewrite in exponential form:  $\log_{36} \frac{1}{6} = -\frac{1}{2}$ .

43. Expand the expression:  $\log_3 \frac{a^2 \sqrt{b}}{c^4}$ .

44. Expand the expression:  $\ln \frac{6h^5}{j^3}$ .

45. Condense the expression:  
 $\frac{1}{2} \log_5 16 + 3 \log_5 x - 4 \log_5 y$ .

46. Solve:  $5^{4x+7} = 25$ .

47. Simplify:  $\frac{x^2 + 8x + 15}{x^2 - 25}$ .

55. Solve:  $\frac{k}{k+1} + \frac{1}{k-1} = \frac{4k-3}{(k+1)(k-1)}$ .

48. Multiply:  $\frac{3x^3y^4}{5x^2} \cdot \frac{25x^6y}{12y^8}$ .

49. Multiply:  $\frac{x^2 - 2x - 35}{x + 3} \cdot \frac{3x + 9}{6x - 42}$ .

50. Multiply:  $\frac{4x + 24}{4x - 6} \cdot \frac{4x^2 - 9}{x^2 + 10x + 24}$ .

51. Divide:  $\frac{x^3}{x^3 - 3x^2} \div \frac{1}{x^2 + 4x - 21}$ .

52. Perform the indicated operations:  
 $\frac{x+6}{2x^2-6x} \cdot \frac{x^3+5x^2}{4x-16} \div \frac{x^2+10x+25}{x^2+2x-15}$

53. Solve:  $\frac{6}{x-2} = \frac{5}{x-3}$ .

54. Solve:  $\frac{2}{a^2-1} = \frac{2}{a+1}$ .