

**Algebra 1 Proficiency Test Review**  
**Show all of your work.**

Name \_\_\_\_\_

For questions 1-5, solve for x.

1.  $|2x - 4| = 6$

2.  $4|3x + 5| < 16$

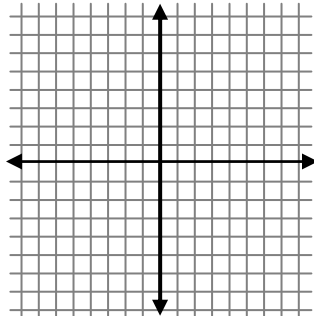
3.  $\frac{2x}{3} + \frac{3}{5} = \frac{29}{15}$

4.  $3(x - 1) - 5(2x + 3) > 3x - 10$

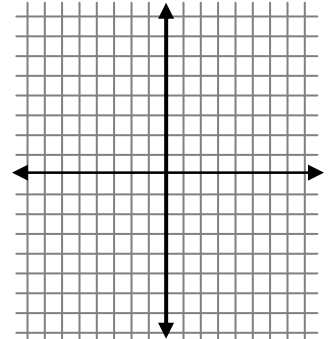
5.  $\frac{2}{x + 7} = \frac{4}{x - 3}$

6. Sue, Millie, and Karin had 100 stamps in their stamp collection. Sue had twice as many stamps as Karin. Karin had four less stamps than Millie. How many stamps did each of the three girls have?

7. Graph  $x - 2y = 6$



8. Graph  $3x + 2y > 12$



9. Write the equation of a line that passes through the points  $(-2, -7)$  and  $(-4, -11)$ .

10. Write an equation of a line perpendicular to the line  $y = \frac{4}{3}x + 7$  and passes through the point  $(-4, 5)$ .

11. Find the slope and y-intercept:  $2x - 3y = 12$ .

12. Solve the system of equations.

$$\begin{cases} 2x - 5y = 16 \\ -4x + 10y = 9 \end{cases}$$

13. Solve the system of equations.

$$\begin{cases} x + 3y > 9 \\ 2x - 4y \leq 8 \end{cases}$$

14. Simplify:  $4a^2b^3(2a^4b)^3$

16. Simplify:  $\frac{4x^3y^8z^3}{6x^9y^2z^3}$

17. Multiply:  $(4x-5)(-6x+11)$

18. Factor:  $4x^2-25$

19. Factor:  $4x^2+5x-6$

20. Factor:  $9x^2-30x+25$

21. Factor completely:  $12a^3+28a^2+8a$

22. Multiply:  $\frac{x^2+2x-15}{x^2-9} \cdot \frac{x^2-3x-18}{x^2-7x+6}$

23. Subtract:  $\frac{2x+3}{x^2-x-30} - \frac{x-2}{x^2-x-30}$

24. Add:  $\frac{2a+3}{a^2-7a+12} + \frac{2}{a-3}$

25. Find the solutions:  $x^2-7x+10=0$

26. Use completing the square to solve:  
 $x^2-12x=-10$

26. Quadratic Formula:  $3x^2-2x-3=0$

27. Graph and find the x and y-intercepts of  
 $y=x^2-4x-5$ .

