

Part 1 – Simplifying Expressions

Simplify each expression.

1. $7a + 3b - 4a - 5b$

2. $3x + 5y + 7x - 3y$

3. $3(15x - 9y) + 5(4y - x)$

4. $2(10m - 7a) + 3(8a - 3m)$

5. $\frac{1}{4}(6 + 20y) - \frac{1}{2}(19 - 8y)$

6. $7(0.2p + 0.3q) + 5(0.6p - q)$

Simplify the fraction completely

7. $\frac{14}{70}$

8. $\frac{75}{15}$

9. $\frac{18z}{36}$

10. $\frac{3x}{x}$

11. $\frac{5bc}{10b^2}$

12. $\frac{-8y^3}{2y}$

13. $\frac{-18r^3t}{12rt}$

14. $\frac{3ab^2}{6bc}$

Simplify each by FOILING

15. $(p + 6)(p - 4)$

16. $(a + 6)(a + 3)$

17. $(3x + 8)(2x + 6)$

18. $(4y - 6)(2y + 7)$

19. $(m - 3)^2$

20. $(2y + 1)^2$

Simplify each by factoring

21. $x^2 + 7x - 18$

22. $x^2 + 2x - 15$

23. $x^2 - 5x - 6$

24. $x^2 - x - 56$

25. $x^2 + 9x + 8$

26. $x^2 + 7x + 12$

27. $x^2 - 5x + 4$

28. $x^2 - 11x + 18$

29. $x^2 + 10x - 24$

30. $x^2 + 13x + 36$

Part 2 – Solving Equations & Inequalities

Solve each equation.

1. $2p + 15 = 29$

2. $x + 9x - 6x + 4x = 20$

3. $-7(p + 8) = 21$

4. $3f - 2 = 4f + 5$

5. $\frac{1}{9} - \frac{2}{3}b = \frac{1}{18}$

6. $\frac{5}{8} + \frac{3}{4}x = \frac{1}{16}$

7. $3d + 7 = 6d + 5$

8. $2(4x + 4) = x + 1$

9. $4(k + 3) + 2 = 4.5(k + 1)$

10. $53 = 3(y - 2) - 2(3y - 1)$

11. $5(x - 3) + 2 = 3(x + 2) + 2x$

12. $2x + 1 = 3(x - 1) - x + 4$

13. $3(180 - y) = 2(90 - y)$

14. $6x - 3(6 - 5x) + 3x = 10 - 4(2 - x)$

15. $\frac{1}{2}(6 + 4x) - \frac{1}{4}(8x - 12) = \frac{1}{2}(2x - 4)$

16. $5x - [7 - (2x - 1)] = 3(x - 5) + 4(x + 3)$

Solve the following proportions using cross multiplication.

17. $\frac{7}{2} = \frac{y}{3}$

18. $\frac{7}{3} = \frac{21}{x}$

19. $\frac{25}{15} = \frac{10}{x}$

20. $\frac{10}{6x+7} = \frac{6}{2x+9}$

21. $\frac{4}{x-3} = \frac{6}{x+3}$

22. $\frac{3x-5}{2} = \frac{x-15}{4}$

23. $\frac{2-4x}{-6} = \frac{6x-8}{10}$

24. $\frac{-3}{4x+3} = \frac{3}{x-6}$

Solve each inequality. Represent the solution in proper interval notation.

25. $-8p \geq 24$

26. $13 - 4k \leq 27$

27. $14 > 7y - 21$

28. $2(4x + 9) \leq 18$

29. $90 \geq 5(2x + 6)$

30. $6d + 3 \geq 5d - 2$

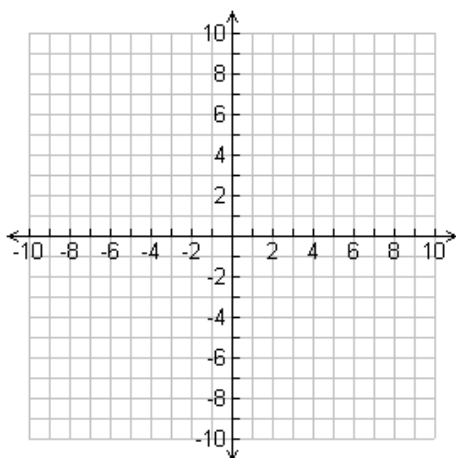
31. $9z + 2 > 4z + 15$

32. $2(g + 4) < 3g - 2(g - 5)$

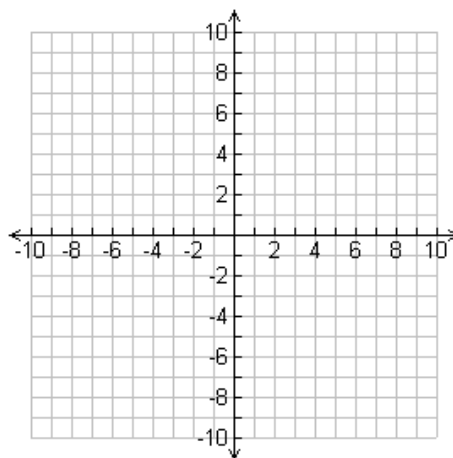
Part 3 – Graphing & Systems of Equations

Graph each of the following linear functions.

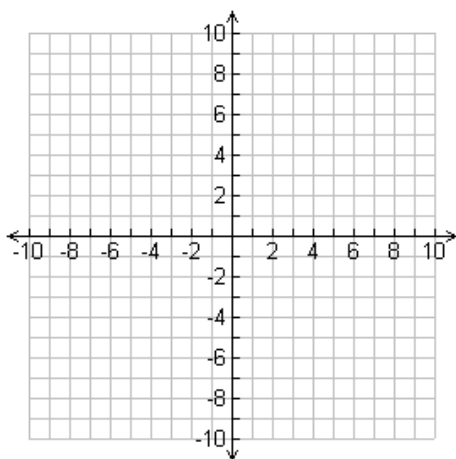
1. $y = 2x - 5$



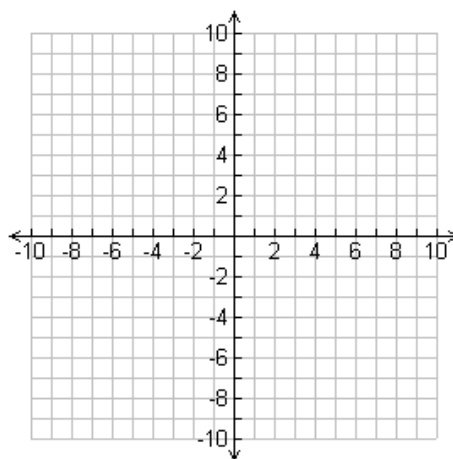
2. $y = -\frac{1}{3}x + 2$



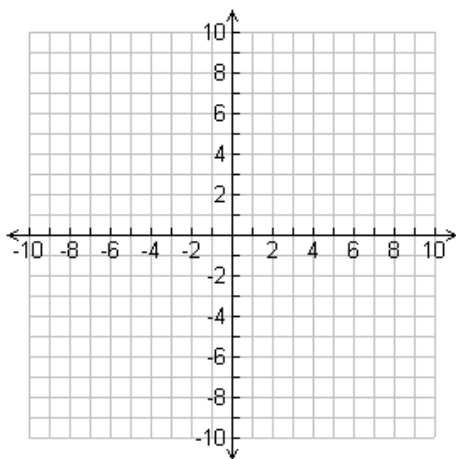
3. $2y - 6x = 10$



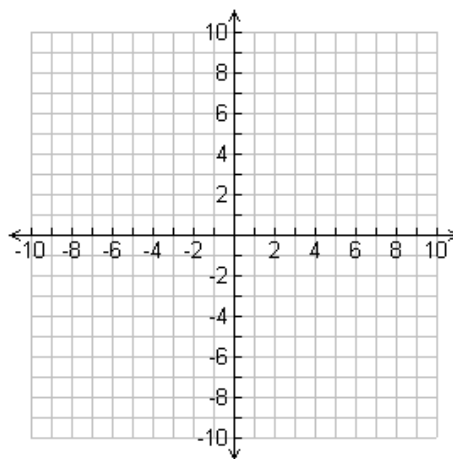
4. $4y + x = 20$



5. $y = 4$

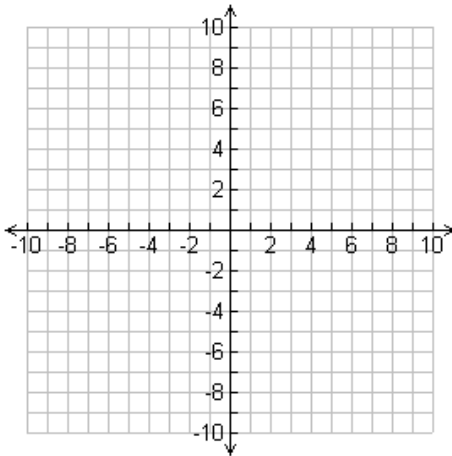


6. $x = 4$

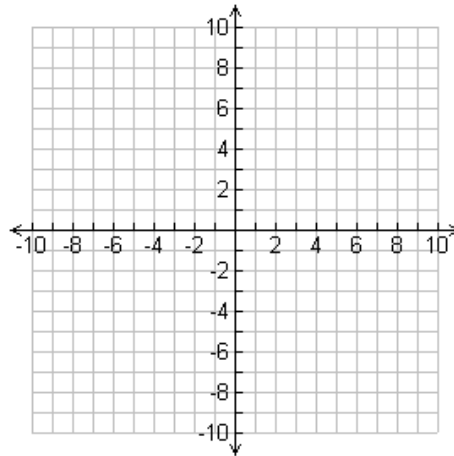


Graph each linear function by finding the x and y intercepts.

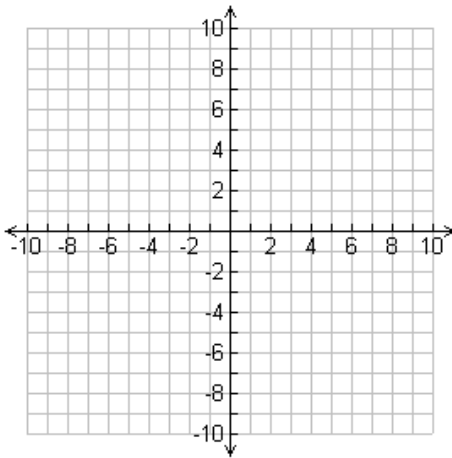
7. $2x + 3y = 12$



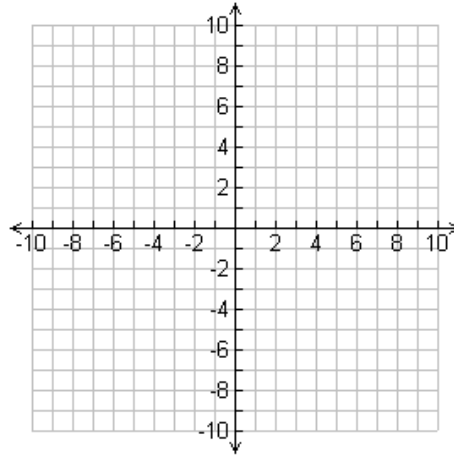
8. $-4x + y = 8$



9. $-2y = 5x + 10$

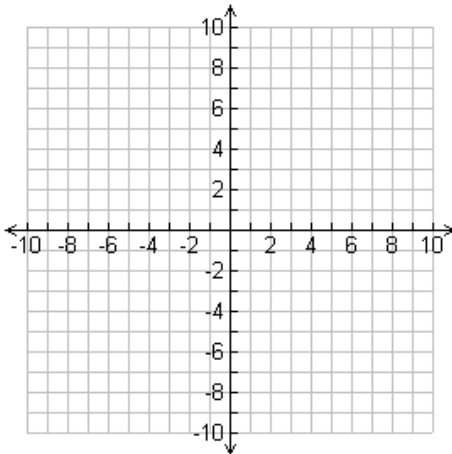


10. $\frac{2}{3}y - x = 6$

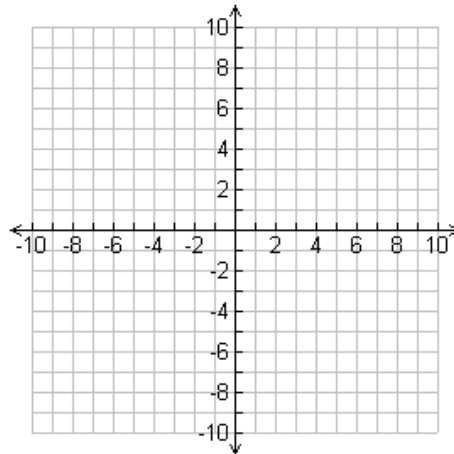


Solve the following systems by graphing.

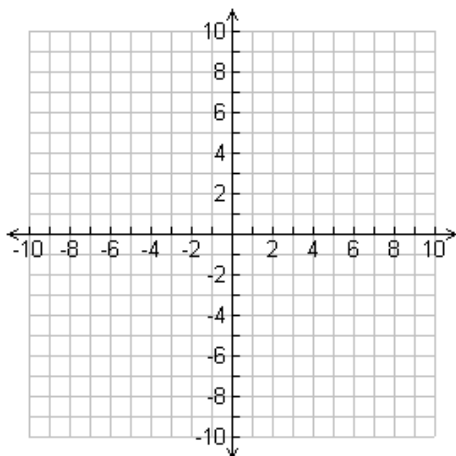
11. $-6x + y = 4$
 $-y - 2x = 4$



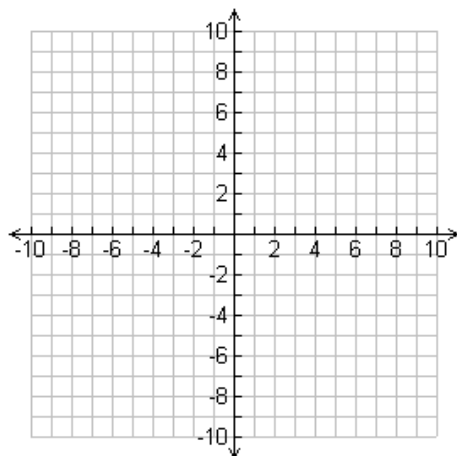
12. $-24x + 6y = 18$
 $-8x + 2y = 6$



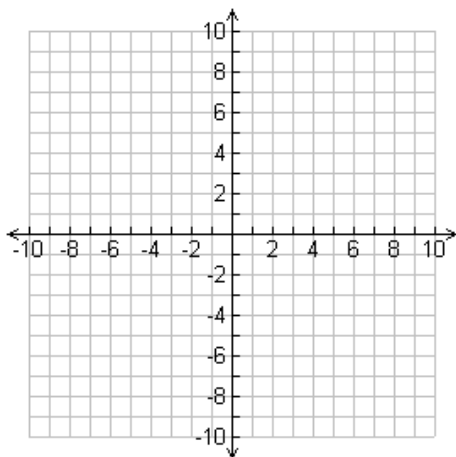
13. $4x - y = -3$
 $-x - 2y = -4$



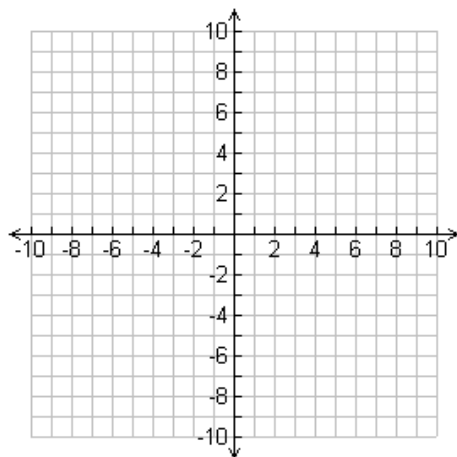
14. $-2x - y = 1$
 $-6x - 3y = 3$



15. $-10x + 10y = 0$
 $-20x + 20y = 20$



16. $x - 2y = -8$
 $x - 2y = 6$



Solve the following systems by substitution.

17. $y = -2x + 1$
 $2x - 2y = 4$

18. $y = 4x - 11$
 $4x - y = 11$

19. $8x - 8y = -24$
 $3x + y = 23$

20. $x - y = -2$
 $-2x + 2y = 2$

21. $5x + 5y = 20$
 $x - 2y = 13$

22. $6x - 2y = -12$
 $x - 6y = -19$