
We will be diving right in on the first day of school and recall of Algebra 1 and Geometry concepts will be vital. Do not confuse familiarity with mastery. You are encouraged to use your notes from previous years, the internet, or work with other students in order to complete this thoroughly and accurately. You should be able to do all these problems **without a calculator and showing all necessary work.**

Please note that calculators are not provided for student use in this class. Each student must have a graphing calculator (TI-84 or TI-84 plus recommended). The TI-89, TI-92 or comparable is not permitted.

If you need help with any of these topics, the following websites may be helpful:

- ❖ <http://www.regentsprep.org/Regents/math/ALGEBRA/math-ALGEBRA.htm>
- ❖ <http://coolmath.com/algebra/Algebra1/index.html>
- ❖ <http://www.algebra.com/>

Solve each equation for x .

1. $6x - 2 = 5x - 7 - 3x$

2. $3(8x - 5) = -4(7 - 6x)$

3. $3(x - 5) + 8x = 18 - (3 - 10x)$

4. $3(8x - 5) + 3 = 22x + 2(x - 6)$

5. $x - \frac{c}{2} = -\frac{3c}{2}$

6. $t = \frac{pd}{2x}$

7. $c + ax = dx$

8. $|3x + 19| = 13$

$$9. \left| 4 - \frac{x}{5} \right| = 10$$

$$10. 7 - |4x + 1| = -2$$

Solve each inequality. Show your answer on a number line.

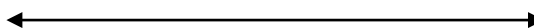
$$11. 36 - 11x \geq -63$$

$$12. 7x - 12 \leq 9(2x - 3)$$



$$13. 5 - 3(10 - 7x) < 4(2x + 10)$$

$$14. 14 < 5 - 3x \leq 53$$



Find the slope of the following:

$$15. y = -3$$

$$16. \text{Line parallel to } 5x - y = 2$$

$$17. \text{Line perpendicular to } 3x - 5y = 7$$

Find the x and y intercepts of the line. All intercepts should be stated as an ordered pair!

$$18. 10x - 4y = -20$$

$$19. x = 2$$

$$20. y = 2x + 3$$

Find the equation of each line using the given information using the most efficient form (point-slope, slope-intercept, or standard).

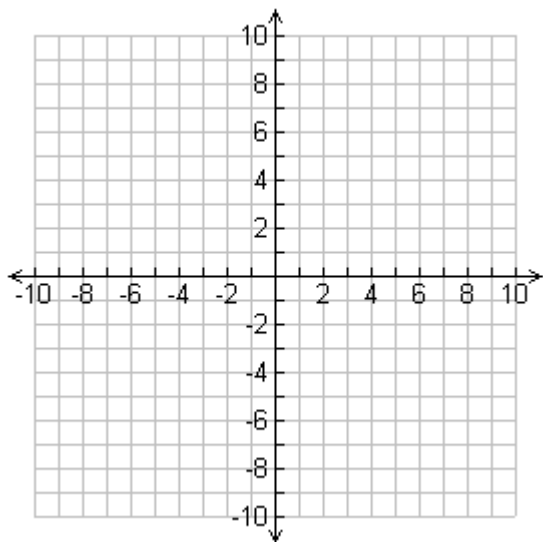
21. x-intercept is 4 and y-intercept is -6

21. passes through (-1, 4) and a slope of $-\frac{2}{3}$

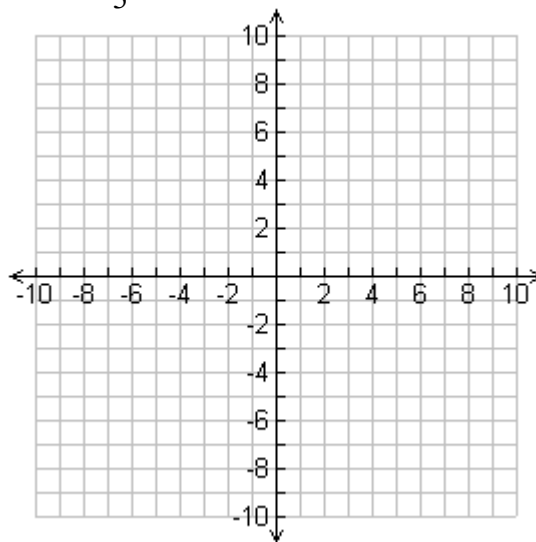
22. passes through (4, 9) and (11, 5)

Graph each equation.

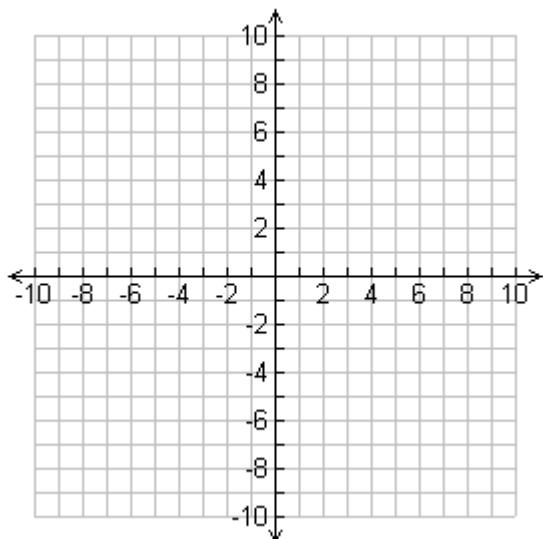
23. $3x - 8y = 24$



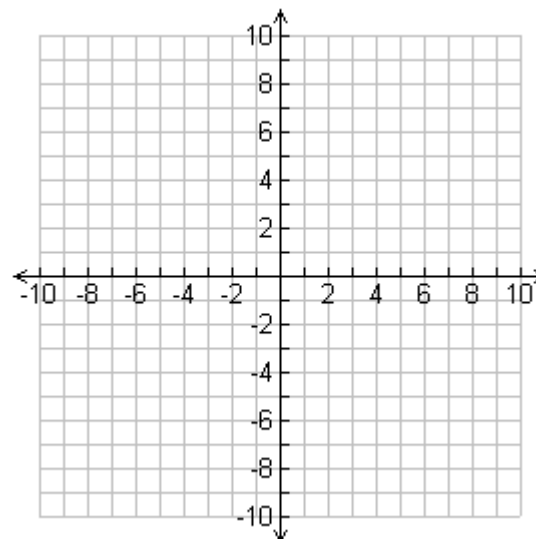
24. $y - 2 = \frac{1}{3}(x + 4)$



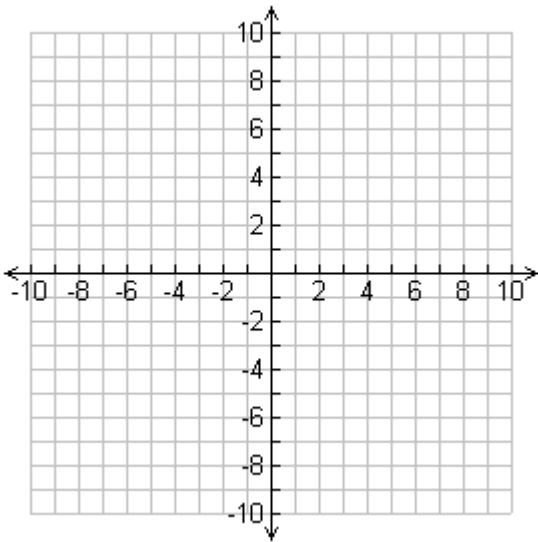
25. $y = -\frac{3}{2}x - 1$



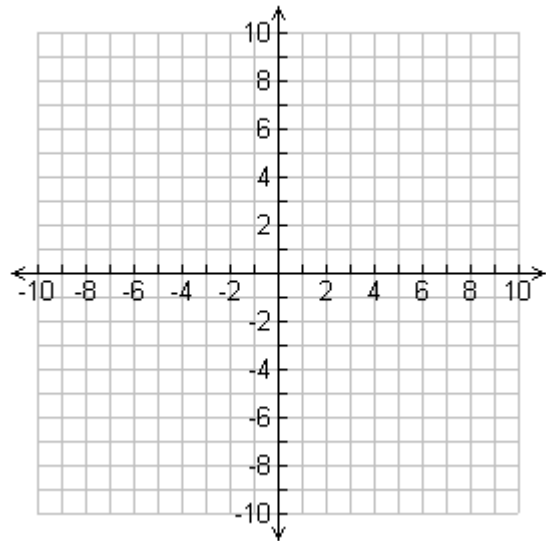
26. $y - 6 \geq -\frac{2}{5}(x + 4)$



27. $y > -x$



28. $x \leq 4$



Solve by most efficient method (substitution or elimination). State all answers as an ordered pair (when appropriate).

29.
$$\begin{cases} 2x - 3y = 20 \\ 6x - y = 20 \end{cases}$$

30.
$$\begin{cases} 12x - 10y = 0 \\ -6x + 5y = 2 \end{cases}$$

31.
$$\begin{cases} 3y = 3x \\ 5x - 5y = 0 \end{cases}$$

Simplify each expression. (No decimal answers).

32. $m^4 m^3$

33. $(x^4)^3$

34. $\frac{y^4}{y^3}$

35. $(2a^3 b^5)^3$

36. $(-a)^4(-a)^3$

37. $(9y^{-4})^2$

38. $\left(\frac{3m^5n^3}{2mn^{-1}}\right)^3$

39. $\sqrt{12}$

40. $\sqrt{45x^2}$

41. $\sqrt{75xy^2}$

42. Evaluate $f(-2)$ given $f(x) = -2x^3 - 3x + 2$

Find each sum or difference.

43. $(-3x^3 - 2x^2 + 5x + 4) + (-2x^3 + 7x - 6)$

44. $(-3x^3 - 12x^2 - 5x + 1) - (x^3 - x^2 + 5x + 8)$

Factor completely. (Remember to look for a GCF!)

45. $3x^2 - 12x$

46. $x^2 - 49$

47. $3x^3 - 75$

48. $25x^2 - 81$

49. $x^2 + 22x + 21$

50. $x^2 + 5xy - 6y^2$