

Algebraic Equations

Q: How can systems of equations be used to represent real world situations?

When would you use slope intercept form vs. Standard form?

How do you change standard form to slope intercept form?

How do I calculate possible points on a line?

How do I solve perpendicular lines?

★ Slope Intercept Form:
 $y = mx + b$

★ Slope:
 $\frac{y_2 - y_1}{x_2 - x_1}$

★ Distance Formula:
 $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

★ Perpendicular lines are where the slopes are NEGATIVE RECIPROCALLS of each other: $y = 2x + 2$

★ Standard Form:
 $ax + by = c$

★ Midpoint Formula:
 $\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}$

★ Binomials:
 $(a+b)(c+d) = ac + ad + bc + bd$

Standard to Slope Form to Find Points

1. Move everything right except y

ex) $3x + 5y = 20$
 $\begin{array}{r} -3x \\ \hline 5y = 20 - 3x \\ \hline \end{array}$

$y = 4 - \frac{3}{5}x$
 $y = -\frac{3}{5}x + 4$

Plug in x-values

$y = -\frac{3}{5}x + 4$

Possible Points

x	y
1	3.4
0	4
-1	

Solving Perpendicular Lines to Solve for Lines

$2x + 4y = 12$

$y = \frac{2}{1}x - 5$

$m = -\frac{1}{2}$ line 1

1. Change to slope-intercept form $m = \frac{2}{1}$ line 2

$4y = 12 - 2x$

$7 = \frac{2}{1}(6) + b$

$7 = 12 + b$

$-12 - 12$
 $-5 = b$

L1 $y = -\frac{1}{2}x + 3$

By using systems, we can predict future outcomes of prices or points on a graph. We are also able to identify missing parts to fill in the rest of an equation.