Algebra 1   3.1
Identify linear equations, intercepts, and zeros
Graph linear equations

integer
linear equation
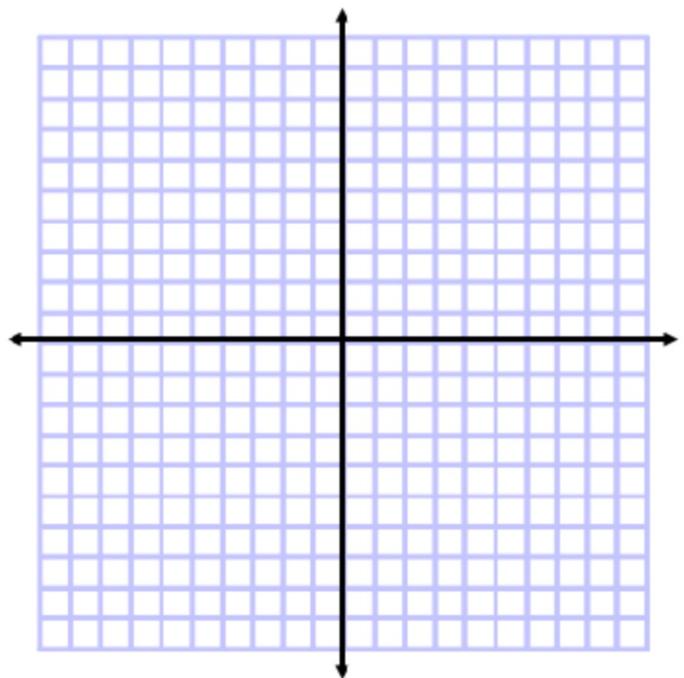standard form
constant
variable
x-intercept
y-intercept

whiteboards

KeyConcept Standard Form of a Linear Equation

Words The standard form of a linear equation is $Ax + By = C$, where $A \geq 0$, A and B are not both zero, and A, B, and C are integers with a greatest common factor of 1.

Examples In $3x + 2y = 5$, $A = 3$, $B = 2$, and $C = 5$.
In $x = -7$, $A = 1$, $B = 0$, and $C = -7$.

1. In order
2. (No fractions)
3. A is positive

$$2x = 3y + 5$$
$$-3y \qquad -3y$$
$$\overline{}$$
$$2x - 3y = 5$$

$A = 2$
$B = -3$
$C = 5$

$y = -\frac{1}{2}x + 6$

$+\frac{1}{2}x \qquad +\frac{1}{2}x$

2. $\frac{1}{2}x^{2\cdot} + y =^{2\cdot} 6$

$1x + 2y = 12$

$A = 1$
$B = 2 \qquad C = 12$

$y = \frac{1}{4}x - 7$

$-\frac{1}{4}x \qquad -\frac{1}{4}x$

4. $-\frac{1}{4}x + y = -7$

④

$\frac{-4}{4}$

$-1\cdot -1x +^{-1\cdot} 4y =^{-1\cdot} -28$

$1x - 4y = 28$

$A = 1$
$B = -4$
$C = 28$

ICE: In-class practice

$3x - 2y = 12$

y int
$(0, -6)$

$(4, 0)$
x-int

$0 - 2y = 12$
$\dfrac{-2y}{-2} = \dfrac{12}{-2}$
$y = -6$

$\dfrac{3x - 0 = 12}{3} \quad \dfrac{12}{3}$
$x = 4$

$3x - 2y = 12$
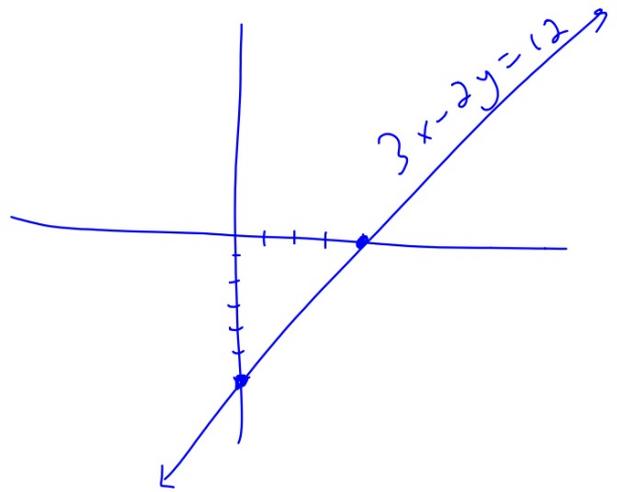
$y = \frac{1}{2}x - 3$

	$\frac{1}{2}x - 3$	
2	1 ∓ 3	$^-2$
$^-4$	-2 ∓ 3	$^-5$
0	$0 - 3$	$^-3$
4	2 ∓ 3	$^-1$

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