12.2 Graphing Linear Equations

- LINEAR EQUATIONS IN TWO VARIABLES

**Linear Equation:** An equation in which each variable term contains a single variable raised to an exponent of 1.

The equation of a line \( L \) is in **standard form** when it is written as
\[
Ax + By = C
\]
where \( A, B, \) and \( C \) are real numbers, and \( A \) and \( B \) are not both 0.

The equation of a line \( L \) is in **slope-intercept form** when it is written as
\[
y = mx + b
\]
where \( m \) and \( b \) are real numbers.

- \( m \): Slope  
- \( b \): y-intercept; \((0, b)\)

**Ex.** Graph each equation and identify the y-intercept.

(a) \( y = x - 3 \)

y-intercept: ___________
(b) \[ 3x + 5y = 5 \]

\[ y \text{-intercept: } \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\]  

\[ c \]
\[ y = -\frac{1}{2}x \]

\[ y \text{-intercept: } \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\]