Equations of Straight Lines on Different types of Graph paper

Linear-Linear paper -- x axis is linear, y axis is linear

\[ y = m x + b \]
\[ m = \frac{(y_2 - y_1)}{(x_2 - x_1)} \]
\[ b = \text{y value corresponding to x}=0 \]

Semi-log paper -- x axis is logarithmic, y axis is linear

\[ y = b + m \log(x) \]
\[ m = \text{difference in y over one log cycle of x} \]
\[ b = \text{y value corresponding to x}=1 \]

Semi-log paper -- x axis is linear, y axis is logarithmic

\[ y = b \cdot 10^{mx} \]
\[ m = \text{difference in x over one log cycle of y} \]
\[ b = \text{y value corresponding to x}=0 \]

Log-log paper -- Both x and y axes are logarithmic

\[ y = b \cdot x^{a} \]
\[ a = \text{slope in log cycles} \]
\[ \text{i.e. number of log cycles on y axis per log cycle on the x axis} \]
\[ b = \text{y value corresponding to x}=1 \]

In all equations, \( b \) is in units of the y values, and \( m \) is in units of the y values divided by units of the x values.