一次函数的有关计算

September 19, 2021

已知：直线$y=kx+b$过两点(x_1,y_1),(x_2,y_2),求该直线的解析式.
解:将(x_1,y_1),(x_2,y_2)代入方程,得

$$\begin{cases} y_1=kx_1+b & (1) \\ y_2=kx_2+b & (2) \end{cases}$$

$(1)-(2)$,得

$$y_1-y_2=k(x_1-x_2)$$

即

$$k=\frac{y_1-y_2}{x_1-x_2}$$

$(1)\times x_2,(2)\times x_1$,得

$$\begin{cases} x_2y_1=kx_1x_2+bx_2 & (3) \\ x_1y_2=kx_1x_2+bx_1 & (4) \end{cases}$$

$(4)-(3)$,得

$$x_1y_2-x_2y_1=b(x_1-x_2)$$

即

$$b=\frac{x_1y_2-x_2y_1}{x_1-x_2}$$

所以,该直线的解析式为

$$y=\frac{y_1-y_2}{x_1-x_2}x+\frac{x_1y_2-x_2y_1}{x_1-x_2}$$