

热知识:

已知在平面直角坐标系中, $A(x_1, y_1), B(x_2, y_2)$

如果我们要求 AB 的解析式, 那么一般是使用待定系数法来求解

设 $AB: y = kx + b$

$$kx_1 + b = y_1 \quad ①$$

$$kx_2 + b = y_2 \quad ②$$

$$\text{则 } ① - ② = y_1 - y_2 = (kx_1 + b) - (kx_2 + b) = kx_1 - kx_2 + b - b = k(x_1 - x_2)$$

$$\text{即: } k(x_1 - x_2) = y_1 - y_2$$

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

翻译成成人话就是: 该直线的斜率 k 等于两个点的横纵坐标之差的比值

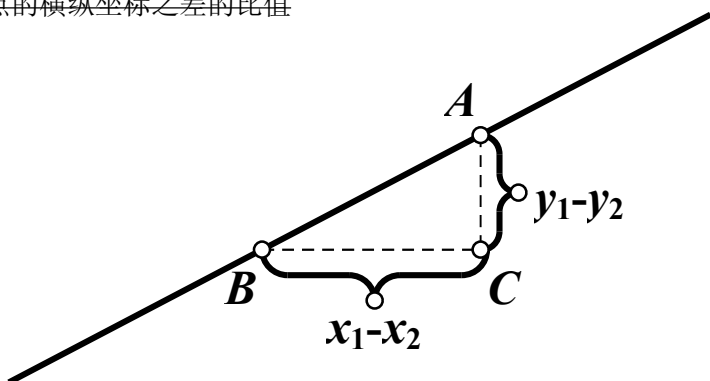
如何直观的理解?

如图所示:

$y_1 - y_2$ 代表 $Rt \triangle ACB$ 中的 AC

$x_1 - x_2$ 代表 $Rt \triangle ACB$ 中的 BC

$$\therefore k = \frac{AC}{BC}$$



例: 25(1)

作 A 关于 x 轴的对称点 A' , 连接 $A'B$

$$\because A(0, 3), B(-3\sqrt{3}, 0)$$

$$\therefore \frac{OA}{OB} = \frac{3}{3\sqrt{3}} = \frac{\sqrt{3}}{3}$$

$$\therefore OA = \frac{\sqrt{3}}{3} OB = \frac{1}{2} AB$$

$$\because AO = A'O$$

$$\therefore AA' = 2OA = AB = A'B$$

$$\therefore \triangle ABA' \text{ 是等边三角形}$$

$$\therefore \angle ABA' = 60^\circ$$

$$\therefore \angle ABD = 30^\circ$$

$$\because CD \text{ 垂直平分 } AB$$

$$\therefore AD = BD$$

$$\therefore \angle BAD = \angle ABD = 30^\circ$$

$$\therefore \angle ADO = 60^\circ$$

$$\therefore \angle DAO = 30^\circ$$

$$\therefore k_{AD} = \frac{AO}{DO} = \sqrt{3}$$

$$\because A(0, 3)$$

$$\therefore AD: y = \sqrt{3}x + 3$$

