

YOU & MATHS You got the slope – find a point Point P has coordinates $(1, 3)$ and the origin O has coordinates $(0, 0)$. Find a point A such that each of the following is true:

- a. the slope between P and A is 3;
- b. the slope between O and A is 3;
- c. the line through P and A has equation $y = -5x + 8$;
- d. the line through O and A has equation $y = 7x$.

For questions **a** and **b** keep in mind that the slope of a line between two points A and B is «the rise over the run»:

$$\frac{y_B - y_A}{x_B - x_A}.$$

- a. You need to think of coordinates for A such that $\frac{y_A - 3}{x_A - 1} = 3$. A possible solution is the origin $O(0, 0)$.
- b. You need to think of coordinates for A such that $\frac{y_A - 0}{x_A - 0} = 3$. A possible solution is point $P(1, 3)$.
- c. You only need to think of a point A that satisfies the equation $y = -5x + 8$. For example, $A = (2, -2)$ will work because $-2 = -5(2) + 8$ which is $-2 = -2$.
- d. You only need to think of a point A that satisfies the equation $y = 7x$. For example, $A = (1, 7)$ will work because $7 = 7 \cdot (1)$ which is $7 = 7$.