Finding a line from points or gradient

6 questions | 12 marks

Equivalent correct methods earn the corresponding marks.

1. Find the line of gradient 4 through (2,1). [2 marks]

$y-1=4(x-2)$.

Answer: $y=4x-7$

2. Find the line through (-1,2) and (3,10). [2 marks]

Gradient=(10-2)/(3+1)=2.

Use $(-1,2)$: $2=-2+c$, so c=4.

Answer: $y=2x+4$

3. A line meets the axes at (6,0) and (0,3). Find its equation. [2 marks]

Gradient=(0-3)/(6-0)=-1/2 and the y-intercept is 3.

Answer: $y=-x/2+3$

4. Find the equation through (-4,2) and (-4,9). [2 marks]

Both x-coordinates agree, so the line is vertical.

Answer: $x=-4$

5. A taxi fare is linear. A 2 km trip costs 11 dollars and a 7 km trip costs 23.50 dollars. Find a fare model. [2 marks]

Rate=(23.50-11)/(7-2)=2.50 dollars/km.

Using d=2 gives the initial fee 6 dollars.

Answer: $C(d)=2.5d+6$ for distances d in kilometres.

6. Does $y=3x-1$ pass through both (2,5) and (4,10)? Explain. [2 marks]

At x=2, y=5; at x=4, the rule gives 11 rather than 10.

Answer: It passes through (2,5) only.