

Exercise walk-through

3.2

Lines

Pearson Edexcel · International GCSE · Mathematics A

Exercises 2.1·2.3

2.1 (Foundation) Find the gradient through (1,2) and (4,8).

2.2 (Foundation) Find the y-intercept of $y-5=3(x-2)$.

2.3 (Foundation) For $y=3x-1$, find y when $x=5$.

Exercises 2.1·2.3

2.1 (Foundation) Find the gradient through (1,2) and (4,8).

2.1 Gradient = $(8-2)/(4-1) = 6/3 = 2$.

2.2 (Foundation) Find the y-intercept of $y-5=3(x-2)$.

2.2 Expand $y-5=3x-6$, so $y=3x-1$; the intercept is -1.

2.3 (Foundation) For $y=3x-1$, find y when $x=5$.

2.3 Substitute $x=5$ into $y=3x-1$: $y=15-1=14$.

Exercises 2.4·3.1

2.4 (Higher) Find the radius of $(x-2)^2+(y+1)^2=25$.

3.1 Decide whether this claim is true. Justify with a concrete calculation or counterexample: Perpendicular nonvertical lines always have equal gradients.

Exercises 2.4·3.1

2.4 (Higher) Find the radius of $(x-2)^2+(y+1)^2=25$.

2.4 The radius is the positive square root of 25, namely 5.

3.1 Decide whether this claim is true. Justify with a concrete calculation or counterexample: Perpendicular nonvertical lines always have equal gradients.

3.1 False. $y=2x$ and $y=-x/2$ have gradients 2 and $-1/2$; their product is -1 . Equal gradients describe parallel distinct lines.

Local review guidance: show the chosen method; give the checked result; explain the condition or failed shortcut. This is authored classroom guidance.