JRA Tutors
Private tuition and small online Study Pods

Gradient of a Line

Grade 5 topic · Foundation and Higher · Edexcel and AQA

How to use this pack
20 questions that get harder as you go. Foundation students: aim for Questions 1–15 (40 marks) and have a go at the rest. Higher students: complete all 20. Show your working on the lines and write your final answer on the answer line, then mark yourself with the answers at the back. Diagrams are not drawn accurately. Total: 62 marks.

Warm-up

1 Work out the gradient of the line through (4, 4) and (8, 10). **[2 marks]**

Answer _____

2 Work out the gradient of the line through (−2, 6) and (0, 14). **[2 marks]**

Answer _____

3 Work out the gradient of the line through (−3, 1) and (−1, 3). **[2 marks]**

Answer _____

4 Work out the gradient of the line through (3, −2) and (6, 4). **[2 marks]**

Answer _____

5 Work out the gradient of the line through (4, −2) and (6, 4). **[2 marks]**

Answer _____

Core

6 Write down the gradient of the line y = 2x + 6. **[1 mark]**

Answer _____

7 Work out the gradient of the line 2y = 4x + 6. **[3 marks]**

Answer _____

8 Work out the gradient of the line $3x + y = 7$. **[3 marks]**

Answer _____

9 A line goes up 3 units for every 2 units across. What is its gradient? **[2 marks]**

Answer _____

10 Work out the gradient of the line $2y - 6x = 8$. **[4 marks]**

Answer _____

Stretch

11 A line has gradient -2 and passes through $(4, 3)$. It also passes through $(5, k)$. Find k. **[4 marks]**

Answer _____

12 The line through $(0, 2)$ and $(4, k)$ has gradient 3. Find k. **[3 marks]**

Answer _____

13 Work out the gradient of the line through $(-2, 5)$ and $(4, -1)$. **[3 marks]**

Answer _____

14 Are the points (0, 1), (2, 5) and (4, 9) on a straight line? Show your working. **[4 marks]**

Answer _____

15 A road rises 15 m over a horizontal distance of 200 m. Work out its gradient as a fraction. **[3 marks]**

Answer _____

Challenge

16 Work out the gradient of the line through (−2, 1) and (2, 9), then the gradient of any line perpendicular to it. **[5 marks]**

Answer _____

17 The gradient of the line joining (1, 2) and (k, 8) is 2. Find k. **[4 marks]**

Answer _____

18 The gradient of the line through (2, k) and (5, 10) is −2. Find k. **[5 marks]**

Answer _____

19 Show that the line through (0, 0) and (6, 9) is parallel to the line 2y = 3x + 5. **[4 marks]**

Answer _____

20 A line has gradient 3/4. Find the horizontal distance needed to rise 12 units. **[4 marks]**

Answer _____