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Parallel and Perpendicular Lines

Grade 6 topic · Higher tier · Edexcel and AQA

How to use this pack
20 questions that get harder as you go. Questions 1–15 (45 marks) build up to the harder Grade 8–9 style questions at the end; aim to 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: 68 marks.

Warm-up

1 Write down the gradient of any line parallel to $y = -2x + 2$. **[2 marks]**

Answer _____

2 Write down the gradient of any line parallel to $y = -3x - 3$. **[2 marks]**

Answer _____

3 Write down the gradient of any line parallel to $y = -2x + 4$. **[2 marks]**

Answer _____

4 Write down the gradient of any line parallel to y = 3x. **[2 marks]**

Answer _____

5 Write down the gradient of any line parallel to y = 4x + 6. **[2 marks]**

Answer _____

Core

6 Find the equation of the line parallel to y = 4x + 3 that passes through (1, 4). **[4 marks]**

Answer _____

7 Find the equation of the line parallel to $y = -2x - 5$ that passes through $(-2, 6)$. **[4 marks]**

Answer _____

8 Find the equation of the line parallel to $y = (2/3)x + 5$ that passes through $(-1, 0)$. **[4 marks]**

Answer _____

9 Find the equation of the line parallel to $y = (2/3)x + 3$ that passes through $(1, -1)$. **[4 marks]**

Answer _____

10 Find the equation of the line parallel to $y = (1/2)x + 3$ that passes through $(1, 4)$. **[4 marks]**

Answer _____

Stretch

11 Write down the gradient of any line perpendicular to $y = 3x + 3$. **[3 marks]**

Answer _____

12 Are the lines $y = 4x$ and $y = -(1/4)x + 1$ perpendicular? Give a reason. **[3 marks]**

Answer _____

13 Are the lines y = 3x + 6 and y = 3x + 10 parallel? Give a reason. **[3 marks]**

Answer _____

14 A line has gradient 4. A second line has gradient −1/4. What can you say about the lines? **[3 marks]**

Answer _____

15 Find the gradient of the line joining (0, 6) and (2, 12) in a form with no decimals. **[3 marks]**

Answer _____

Challenge

16 Find the equation of the line perpendicular to $y = 2x - 5$ that passes through $(-2, 3)$. **[5 marks]**

Answer _____

17 The line L has equation $y = (2/3)x + 4$. Find the equation of the line perpendicular to L that passes through the point where L crosses the y-axis. **[5 marks]**

Answer _____

18 The line $y = -3x + 4$ and the line $y = 2x$ meet. Is it possible for these lines to be perpendicular? Explain. **[4 marks]**

Answer _____

19 A is (0, 4) and B is (2, -2). Find the gradient of the line perpendicular to AB. **[5 marks]**

Answer _____

20 Find the equation of the line parallel to y = 2x + 2 that passes through the origin. **[4 marks]**

Answer _____