



## Parallel and Perpendicular Lines Exam Practice

- Q1. Find an equation of the line which passes through the point P where  $P = (0, 5)$  and is parallel to the line  $y = -3x - 8$   
(2 marks)
- Q2. Find an equation of the line which passes through the point P where  $P = (0, -3)$  and is perpendicular to the line  $y = 3x + 2$   
(2 marks)
- Q3. Find an equation of the line which passes through the point  $(2, -1)$  and is parallel to the line  $y = \frac{1}{2}x - 4$   
(2 marks)
- Q4. Find an equation of the line which passes through the point  $(0, -3)$  and is perpendicular to the line  $y = -\frac{3}{4}x + 2$   
(2 marks)
- Q5. Line  $L$  passes through the points  $A = (2, 5)$ ,  $B = (5, 17)$ . Find the equation of the line  $M$  which is perpendicular to line  $L$  and passes through point B.  
(3 marks)
- Q6. Line  $M$  passes through the points  $A = (6, 5)$ ,  $B = (10, 3)$ . Find the equation of the line  $N$  which is parallel to line  $M$  and passes through the point  $(-7, 4)$ .  
(3 marks)
- Q7. Line  $L$  has equation  $y = 2 - \frac{1}{4}x$  and line  $M$  has equation  $y = 4x - 6$ .  
Show that the two lines are perpendicular to each other.  
(2 marks)
- Q8. Line  $L$  has equation  $8x - 4y - 3 = 0$  and line  $M$  has equation  $2y - 9 = x$ . Decide if  $L$  and  $M$  are perpendicular to each other.  
You must show all your working.  
(3 marks)



Q9. Decide which two of these lines are parallel to each other:

1.  $3x + 9 = 12y$
2.  $y = 5$
3.  $4y - 16x + 9 = 0$
4.  $8y - 2x = 10$
5.  $0 = 15 - 4y - 2x$

(2 marks)

Q10. The line which passes through  $(a, 3)$  and  $(5, 11)$  is parallel to the line which passes through  $(4, 7)$  and  $(14, 12)$ . Find the value of  $a$ .

(3 marks)

Q11. State the equation of a line which is perpendicular to the line  $y = 2$

(1 mark)

Q12. Decide which two of these lines are perpendicular to each other:

1.  $y - 3x + 9 = 0$
2.  $3x - 5y + 1 = 0$
3.  $-2x + y = 11$
4.  $4y - 2x + 9 = 0$
5.  $3y = 19 - 5x$

(3 marks)

Q13. The line which passes through  $(a, -4)$  and  $(9, -6)$  is perpendicular to the line which passes through  $(12, 19)$  and  $(15, 13)$ . Find the value of  $a$ .

(3 marks)

Q14. A line has equation  $y = 2x + 3$ . Let P be the point  $(4, 16)$  and point Q be the closest point to P which lies on the line. Find the co-ordinates of Q.

(6 marks)