



SCAN ME

Perpendicular Lines



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REVISE THIS
TOPIC

CHECK YOUR
ANSWERS

- 1 The equation of line L_1 is $y = 5x + 1$
The equation of line L_2 is $5y + x = 20$

Show that these two lines are perpendicular.

(Total for Question 1 is 2 marks)

- 2 The equation of line L_1 is $y = 8 - 3x$
The equation of line L_2 is $9y - 3x - 6 = 0$

Show that these two lines are parallel.

(Total for Question 2 is 2 marks)



- 3 The equation of line L_1 is $2y = x + 10$
The equation of line L_2 is $4y + 8x = 16$

Show that these two lines are perpendicular.

(Total for Question 3 is 2 marks)

- 4 The equation of line L_1 is $y = \frac{3}{4}x + 1$

The equation of line L_2 is $6y + 8x = 30$

Show that these two lines are perpendicular.

(Total for Question 4 is 2 marks)

- 5 The equation of line L_1 is $2y = 3x - 4$
The equation of line L_2 is $8y - 12x - 40 = 0$

Show that these two lines are **not** perpendicular.

(Total for Question 5 is 2 marks)



- 6 The equation of line L_1 is $y = kx + 4$
 The equation of line L_2 is $2y + 4x = 10$

Lines L_1 and L_2 are perpendicular.
 Work out the value of k .

$k = \dots\dots\dots$

(Total for Question 6 is 2 marks)

- 7 The equation of line L_1 is $2y = kx - 2$
 The equation of line L_2 is $3y + x = 18$

Lines L_1 and L_2 are perpendicular.
 Work out the value of k .

$k = \dots\dots\dots$

(Total for Question 7 is 2 marks)

- 8 The equation of line L_1 is $y = 3 - \frac{2}{5}x$
 The equation of line L_2 is $ky - 6x - 20 = 0$

Lines L_1 and L_2 are perpendicular.
 Work out the value of k .

$k = \dots\dots\dots$

(Total for Question 8 is 2 marks)



- 9 The straight line **L** has the equation $y = 3x + 1$
The point *A* has coordinates (9, 4)

Find an equation of the straight line that is perpendicular to **L** and passes through *A*.

.....
(Total for Question 9 is 3 marks)

- 10 The straight line **L** has the equation $y = 5 - 4x$
The point *A* has coordinates (4, 12)

Find an equation of the straight line that is perpendicular to **L** and passes through *A*.

.....
(Total for Question 10 is 3 marks)



11 The straight line **L** has the equation $y = \frac{1}{2}x + 3$

The point **A** has coordinates $(-3, 7)$

Find an equation of the straight line that is perpendicular to **L** and passes through **A**.

.....
(Total for Question 11 is 3 marks)

12 The straight line **L** has the equation $y = 2 - \frac{1}{6}x$

The point **A** has coordinates $(2, 7)$

Find an equation of the straight line that is perpendicular to **L** and passes through **A**.

.....
(Total for Question 12 is 3 marks)



13 $A = (2, 6)$

$B = (1, 9)$

$C = (15, 2)$

Find an equation of the straight line that is perpendicular to AB and passes through C .

.....
(Total for Question 13 is 4 marks)

14 $A = (0, 6)$

$B = (3, 8)$

$C = (6, 6)$

Find an equation of the straight line that is perpendicular to AB and passes through C .

.....
(Total for Question 14 is 4 marks)



15 $A = (5, -3)$

$B = (3, 5)$

$C = (-5, 2)$

Find an equation of the straight line that is perpendicular to AB and passes through C .

.....
(Total for Question 15 is 4 marks)

16 $A = (-4, 5)$

$B = (6, 1)$

$C = (-8, -9)$

Find an equation of the straight line that is perpendicular to AB and passes through C .

.....
(Total for Question 16 is 4 marks)



17 The straight line L_1 has the equation $y = 3 - 2x$
The point A has coordinates $(6, 2)$

Line L_2 is perpendicular to L_1 and passes through A .

(a) Work out the coordinates of the point where line L_2 intersects the x -axis.

(..... ,)
(3)

(b) Work out the coordinates of the point where line L_2 intersects the y -axis.

(..... ,)
(2)

(Total for Question 17 is 5 marks)



18 The straight line L_1 has the equation $y = 2x + 2$
The point A has coordinates $(-8, 11)$

Line L_2 is perpendicular to L_1 and passes through A .

Lines L_1 and L_2 intersect at the point P .
Line L_1 intersects the x -axis at the point Q .
Line L_2 intersects the x -axis at the point R .

Work out the area of triangle PQR .

..... units²

(Total for Question 18 is 6 marks)

