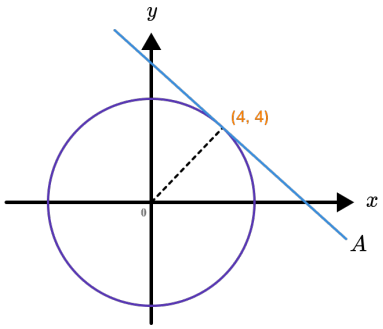
THIRD SPACE LEARNING

GCSE Exam Questions

Parallel and Perpendicular Lines | Algebra

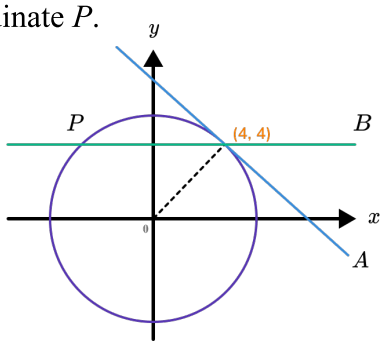
GCSE Exam Questions: Parallel and Perpendicular Lines

1) **(a)** The line A is the tangent to the circle of centre O. The tangent meets the circle at the coordinate (4, 4). Calculate the gradient of the tangent.



(2)

(b) Line B is parallel to the x axis going through the point (4, 4). State the coordinate P.



(1)

(3 marks)

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2) **(a)** The equation of a line A is $2y + 4x = 11$. Another line B is parallel to line A. What is the gradient of line B? Circle the correct answer.

4 2 $-\frac{1}{2}$ - 2 $\frac{1}{2}$

(1)

(b) Line C is perpendicular to line A. What is the gradient of line C? Circle the correct answer.

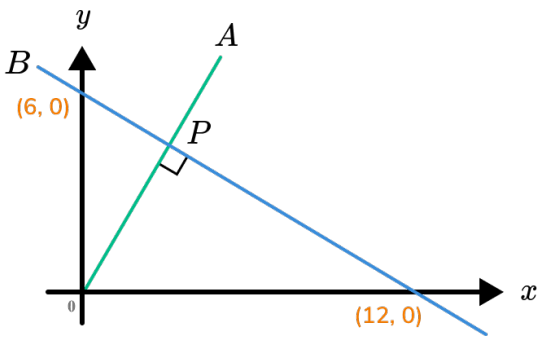
4 2 $-\frac{1}{2}$ - 2 $\frac{1}{2}$

(1)

(2 marks)

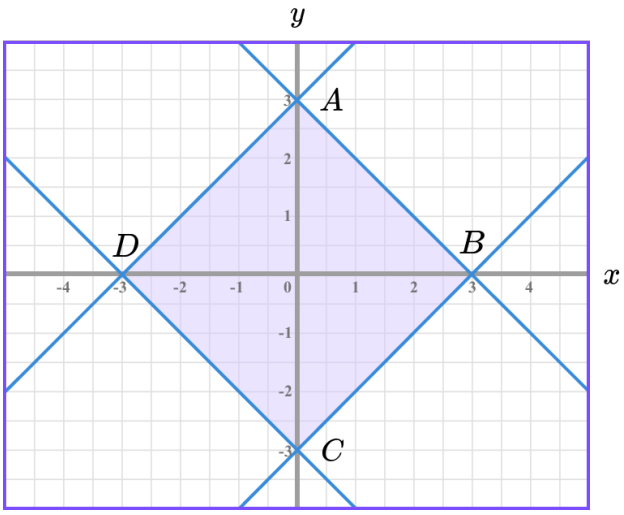
GCSE Exam Questions: Parallel and Perpendicular Lines

3) Two lines A and B are perpendicular. They intersect at the point P. Calculate the coordinate P.



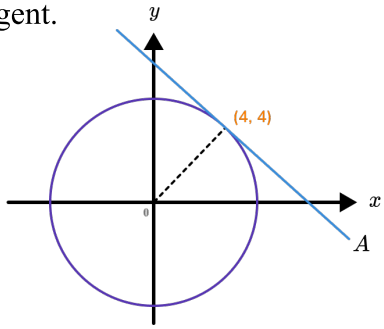
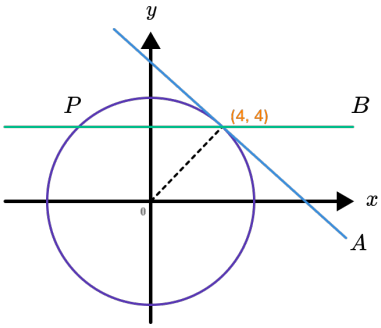
(8 marks)

4) Show that the shape $ABCD$ is a square using parallel and perpendicular lines.

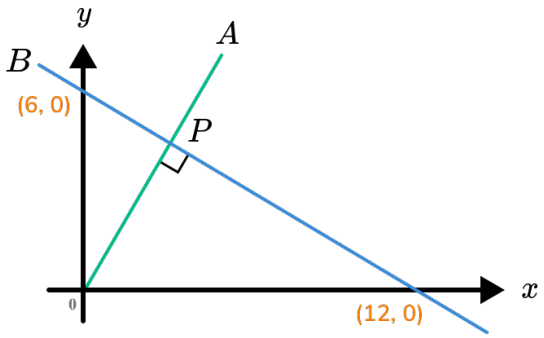
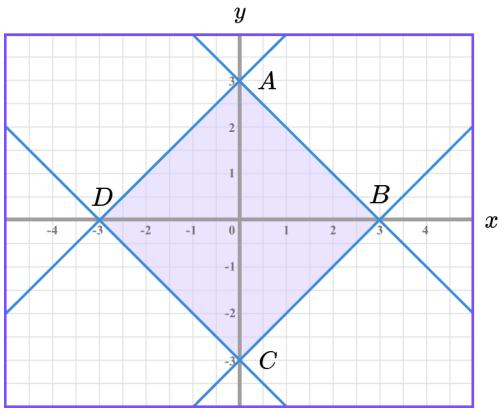


(8 marks)

GCSE Exam Questions: Parallel and Perpendicular Lines Answers

	Question	Answer	Marks
1) (a)	The line A is the tangent to the circle of centre O. The tangent meets the circle at the coordinate (4, 4). Calculate the gradient of the tangent. 	**(a)** $m = \frac{4-0}{4-0} = 1$ $n = -1 \div 1 = -1$	**(1)** **(1)**
(b)	Line B is parallel to the x axis going through the point (4, 4). State the coordinate P. 	**(b)** (- 4, 4)	**(1)**
2) (a)	The equation of a line A is $2y + 4x = 11$. Another line B is parallel to line A. What is the gradient of line B? Circle the correct answer. 4 2 $-\frac{1}{2}$ - 2 $\frac{1}{2}$	**(a)** - 2	**(1)**
(b)	Line C is perpendicular to line A. What is the gradient of line C? Circle the correct answer. 4 2 $-\frac{1}{2}$ - 2 $\frac{1}{2}$	**(b)** $\frac{1}{2}$	**(1)**

GCSE Exam Questions: Parallel and Perpendicular Lines Answers

	Question	Answer	Marks
3)	Two lines A and B are perpendicular. They intersect at the point P. Calculate the coordinate P.  	Line B: Gradient $m = \frac{6-0}{0-12} = -\frac{1}{2}$ Y - intercept $c = 6$ Line B equation: $y = -\frac{1}{2}x + 6$ Line A: Gradient $n = 2$ Y-intercept $c = 0$ Line A equation: $y = 2x$ Coordinate P: $2x = -\frac{1}{2}x + 6$ $x = 2.4x$ $y = 2 \times 2.4 = 4.8$ P = (2.4, 4.8)	**(1)** **(1)** **(1)** **(1)** **(1)** **(1)** **(1)**
4)	Show that the shape ABCD is a square using parallel and perpendicular lines.  	Line AB: $y = -x + 3$ **oe** Line BC: $y = x - 3$ Line CD: $y = -x - 3$ **oe** Line AD: $y = x + 3$ At least 3 equations correct All 4 equations correct Line AB and CD have the same gradient and so they are parallel **oe** Line BC and AD have the same gradient and so they are parallel Line AB and BC are perpendicular as 1 x - 1 = - 1 **oe** Line BX and CD are perpendicular 1 x - 1 = - 1 **oe** Line CD and AD are perpendicular as 1 x - 1 = - 1 **oe** Line AD and AB are perpendicular as 1 x - 1 = - 1 **oe** Minimum of 2 statements seen All 4 statements seen $AC = BD = 6$ units **oe** ABCD is a square.	**(1)** **(1)** **(1)** **(1)** **(1)** **(1)** **(1)**

Where to go next?

For more diagnostic questions, and GCSE maths revision resources and worksheets to support students in fixing any misconceptions take a look at the free Third Space Learning GCSE maths revision pages.

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