5.2 Applications of Differentiation: Gradients, Tangents and Turning Points: 10-minute Pack

AQA 8365 · Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 A curve has equation $y = 4x^2 - 3x + 1$.

(a) Find dy/dx. **(2)**

.....

(b) Find the equation of the tangent to the curve at the point where $x = 1$. Give your answer in the form $y = mx + c$. **(3)**

.....

(Total for Question 1 is 5 marks)

2 A curve has equation $y = 3x^2 + 4/x$, for x not equal to 0.

(a) Find dy/dx. **(2)**

.....

(b) Find the gradient of the curve at the point where $x = 2$. **(2)**

.....

(Total for Question 2 is 4 marks)

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Mark scheme · 5.2 Applications of Differentiation: Gradients, Tangents and Turning Points: 10-minute Pack

Question 1

(a) differentiates at least one term correctly	**M1**
(a) dy/dx = 8x - 3 cao	**A1**
(a) Answer: dy/dx = 8x - 3	
(b) finds the y-coordinate at x = 1, y = 2	**M1**
(b) finds the gradient at x = 1 using their dy/dx, gradient = 5, ft from part (a)	**M1**
(b) y = 5x - 3 oe	**A1**
(b) Answer: y = 5x - 3	

Question 2

(a) writes 4/x as $4x^{-1}$ and differentiates at least one term correctly	**M1**
(a) dy/dx = 6x - $4/x^2$ oe cao	**A1**
(a) Answer: dy/dx = 6x - $4/x^2$	
(b) substitutes x = 2 into their dy/dx, ft from part (a)	**M1**
(b) gradient = 11 cao	**A1**
(b) Answer: 11	

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