1.16 Pure: Vectors and Numerical Methods Depth: 10-minute Pack

EDEXCEL 9MA0 · Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 In triangle OAB, OA = a and OB = b. The point P lies on AB such that AP : PB = 1 : 2. The point Q lies on OP such that OQ : QP = 4 : 2.

(a) Find AB in terms of a and b, and hence find OP in terms of a and b. **(3)**

(b) Find OQ in terms of a and b. **(2)**

(c) Find AQ in terms of a and b, giving your answer in its simplest form. **(2)**

(Total for Question 1 is 7 marks)

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2 The trapezium rule is to be used with 2 strips of equal width to estimate the integral from x = 0 to x = 4. State the width of each strip.

(Total for Question 2 is 1 mark)

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Mark scheme · 1.16 Pure: Vectors and Numerical Methods Depth: 10-minute Pack

Question 1

(a) AB = b - a	**B1**
(a) AP = (1/3) AB and OP = OA + AP	**M1**
(a) OP = (2/3)a + (1/3)b	**A1**
(a) Answer: AB = b - a, OP = (2/3)a + (1/3)b	
(b) OQ = (4/6) OP	**M1**
(b) (4/9)a + (2/9)b	**A1**
(b) Answer: (4/9)a + (2/9)b	
(c) AQ = AO + OQ = -a + OQ	**M1**
(c) -(5/9)a + (2/9)b	**A1**
(c) Answer: -(5/9)a + (2/9)b	

Question 2

2 cao	**B1**
Answer: 2	

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