HIGHER

3.1 Vector Geometry: Proof and Ratio Problems: 10-minute Pack

Total Marks

EDEXCEL 4MA1 · Calculator allowed · about 10 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Given vectors u = (2, -1) and v = (1, 3) in the plane, find u + v.

(Total for Question 1 is 1 mark)

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2 OAB is a triangle. OA = a and OB = b. M is the midpoint of AB. The point P lies on OM such that OP : PM = 1 : 2.
Find BP in terms of a and b.

(Total for Question 2 is 4 marks)

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3 OABC is a trapezium with CB parallel to OA. OA = a, OC = b and CB = 2/3a.
Find AB in terms of a and b.

(Total for Question 3 is 2 marks)

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Mark scheme · 3.1 Vector Geometry: Proof and Ratio Problems: 10-minute Pack

Question 1

u + v = (3, 2) cao	**B1**

Answer: u + v = (3, 2)

Question 2

OM = OA + (1/2)AB = (1/2)(a + b)	**M1**
OP = (1/3)OM = (1/6)a + (1/6)b	**M1**
BP = BO + OP	**M1**
BP = (1/6)a - (5/6)b	**A1**

Answer: (1/6)a - (5/6)b

Question 3

AB = AO + OC + CB	**M1**
AB = -(1/3)a + b	**A1**

Answer: -(1/3)a + b

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