**Year 11 to Year 12 Transition Paper**

**Vectors**

**Mark Scheme**

|  |  |  |
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| **Question** | **Scheme** | **Marks** |
| **1 (i)** | Explains that and lie in the same direction oe | B1 |
|  | **(1)** |
| **(ii)** |  | M1 |
| Attempts | M1 |
|  | A1 |
| Angle between vector and vector is | A1 |
|  | **(4)** |
| **(5 marks)** | | |

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| **Question** | **Scheme** | **Marks** |
| **2 (a)** | Attempts or similar | M1 |
|  | A1 |
|  | **(2)** |
| **(b)** | Finds length using Pythagoras: | M1 |
|  | A1 ft |
|  | **(2)** |
| **(4 marks)** | | |

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| **Question** | **Scheme** | **Marks** |
| **3 (a)** | Attempts or similar | M1 |
|  | A1 |
|  | **(2)** |
| **(b)** | Finds length using 'Pythagoras' | M1 |
|  | A1ft |
|  | **(2)** |
| **(4 marks)** | | |

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| **Question** | **Scheme** | **Marks** |
| **4(a)** |  | M1 |
| **or** | M1 |
| (13, 12) | A1 |
|  | **(3)** |
| **(b)** | e.g.  **with**  e.g. “58” ÷ 2 (=29)  **and** “203” ÷ 7 (=29)  **OR**  e.g.  **with**  e.g. “60” ÷ 2 (=30) **and** “210” ÷ 7 (=30) | M1 |
| Proof (with justification) | A1ft |
|  | **(2)** |
| **(5 marks)** | | |

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| **Question** | **Scheme** | **Marks** |
| **5** | M2 for  **or** **or**  If not M2 then M1 for  or (=) **or**  or  or (=) | M2 |
| 13 | A1 |
|  | **(3)** |
| **(3 marks)** | | |

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| **Question** | **Scheme** | **Marks** |
| **6** | = | M1 |
| oe  oe  (= 4 : 1) oe  oe    oe | M1 |
| 3:1 | A1 |
|  | **(3)** |
| **(3 marks)** | | |
| **Notes**  M1: for finding oror  M1: For use of a correct ratio or fraction linking *AP* and *PM* **or** *AP* and *AM* **or** *AM* and *PM*  (in either order) vectors must be in form *p***a** + *q***b**  A1: See scheme | | |

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| **Question** | **Scheme** | | **Marks** |
| **7(a)** |  | | M1 |
|  | | A1 |
|  | | **(2)** |
| **(b)** |  | | M1 |
|  | | M1 |
| (Alternative for M1M1 ) | | M1 |
| 6**b** | | A1 |
|  | | **(4)** |
| **(c)** |  | | M1 |
|  | | A1 |
| **or** |  | B1 |
| and *Q* are collinear | and *Q* are collinear | A1 |
|  | | **(4)** |
| **(c)**  **Alt** |  | | M1 |
|  | | A1 |
| **or** |  | B1 |
| and *Q* are collinear | and *Q* are collinear | A1 |
|  | | **(4)** |
| **(10 marks)** | | | |