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| **Topic 3: Geometry and Trigonometry** | **Bearings** | |
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| 1. Rachael is flying from Ohio (O) to Dallas (D) with a layover in Baltimore (B). This is displayed in the diagram below.   N  *Not to scale.*  O  B        D  Her flight leaves Ohio on a bearing of 100° and travels 650 km to Baltimore. After changing planes in Baltimore, Rachael’s flight leaves for Dallas on a bearing of 235° and travels 2200 km.  (a) Find .  (b) (i) If Rachael had found a direct flight from Ohio to Dallas,   find the distance of that flight.  (ii) Find the bearing of that direct flight to Dallas from Ohio. | | (2 marks)  (2 marks)  (3 marks) |
| Mark scheme:   1. Methods vary.         N N  100° *Not to scale.*  O 80°  650 km B  45°   235°  2200 km    D   1. (i) Using the Cosine rule       (ii) Finding  Sine rule:  , but needing to find a quadrant 2 angle,  **or**  Cosine rule:    Adding this angle to the original bearing of 100°,    is the bearing from Ohio to Dallas. | | (M1)   (A1)  (M1)  (A1)    (M1)  (A1)     (A1) |