

# Sine & Cosine Rule

## Question Paper 5

|            |  |
|------------|--|
| Level      | IGCSE                                      |
| Subject    | Maths (0580)                               |
| Exam Board | Cambridge International Examinations (CIE) |
| Paper Type | Extended                                   |
| Topic      | Trigonometry                               |
| Sub-Topic  | Sine & Cosine Rule                         |
| Booklet    | Question Paper 5                           |

**Time Allowed:** 51 minutes

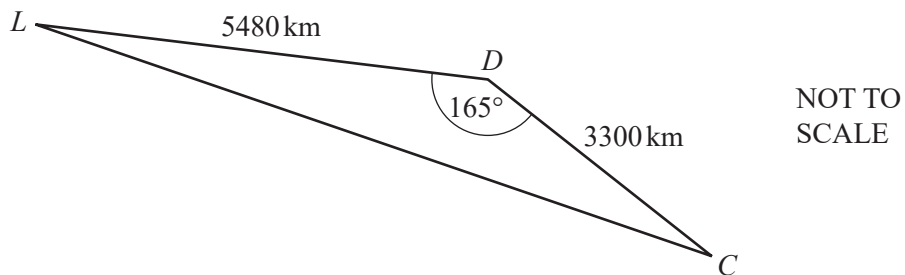
**Score:** /42

**Percentage:** /100

**Grade Boundaries:**

| A*   | A   | B   | C   | D   | E   | U    |
|------|-----|-----|-----|-----|-----|------|
| >85% | 75% | 60% | 45% | 35% | 25% | <25% |

1



The diagram shows the positions of London ( $L$ ), Dubai ( $D$ ) and Colombo ( $C$ ).

(a) (i) Show that  $LC$  is 8710 km correct to the nearest kilometre.

Answer(a)(i)

[4]

(ii) Calculate the angle  $CLD$ .

Answer(a)(ii) Angle  $CLD$  = ..... [3]

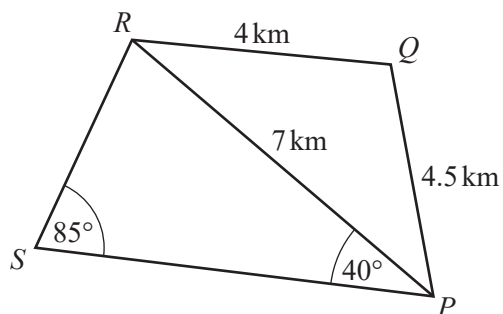
- (b) A plane flies from London to Dubai and then to Colombo.  
It leaves London at 01 50 and the total journey takes 13 hours and 45 minutes.  
The local time in Colombo is 7 hours ahead of London.  
Find the arrival time in Colombo.

*Answer(b)* ..... [2]

- (c) Another plane flies the 8710 km directly from London to Colombo at an average speed of 800 km/h.  
How much longer did the plane in **part (b)** take to travel from London to Colombo?  
Give your answer in hours and minutes, correct to the nearest minute.

*Answer(c)* ..... h ..... min [4]

2



NOT TO SCALE

The diagram shows five straight roads.  
 $PQ = 4.5$  km,  $QR = 4$  km and  $PR = 7$  km.  
 Angle  $RPS = 40^\circ$  and angle  $PSR = 85^\circ$ .

- (a) Calculate angle  $PQR$  and show that it rounds to  $110.7^\circ$ .

*Answer(a)*

[4]

- (b) Calculate the length of the road  $RS$  and show that it rounds to 4.52 km.

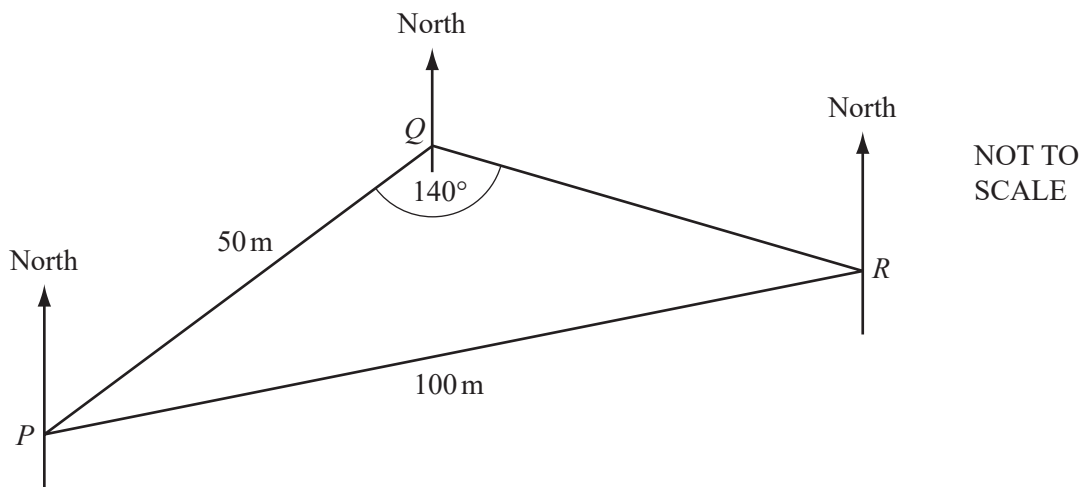
*Answer(b)*

[3]

- (c) Calculate the area of the quadrilateral  $PQRS$ .  
 [Use the value of  $110.7^\circ$  for angle  $PQR$  and the value of 4.52 km for  $RS$ .]

*Answer(c)* ..... km<sup>2</sup> [5]

3



The diagram shows three points  $P$ ,  $Q$  and  $R$  on horizontal ground.

$PQ = 50$  m,  $PR = 100$  m and angle  $PQR = 140^\circ$ .

(a) Calculate angle  $PRQ$ .

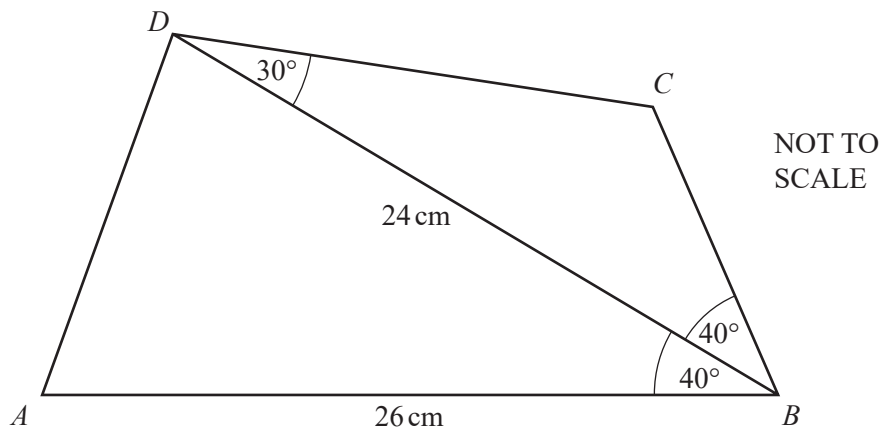
Answer(a) Angle  $PRQ = \dots\dots\dots$  [3]

(b) The bearing of  $R$  from  $Q$  is  $100^\circ$ .

Find the bearing of  $P$  from  $R$ .

Answer(b)  $\dots\dots\dots$  [2]

4



$ABCD$  is a quadrilateral and  $BD$  is a diagonal.  
 $AB = 26$  cm,  $BD = 24$  cm, angle  $ABD = 40^\circ$ , angle  $CBD = 40^\circ$  and angle  $CDB = 30^\circ$ .

(a) Calculate the area of triangle  $ABD$ .

Answer(a) ..... cm<sup>2</sup> [2]

(b) Calculate the length of  $AD$ .

Answer(b) ..... cm [4]

(c) Calculate the length of  $BC$ .

Answer(c) ..... cm [4]

(d) Calculate the shortest distance from the point  $C$  to the line  $BD$ .

Answer(d) ..... cm [2]