

TOPIC: LONGITUDES AND LATITUDES (GROUP GREEN MATHS)

1. Missing information
2. Diagram incomplete

Subtopic: Latitude difference for points on the same longitudea) 40° b) 48° c) 76° d) 75° e) 45° f) 85° g) 63° **Subtopic: Longitude difference for points on the same latitude****Corrected table**

	Longitude of P	Longitude of Q	Longitude difference
a)	42°W	150°W	$150 - 42 = 108^\circ$
b)	100°E	172°E	$172 - 100 = 72^\circ$
c)	30°W	80°E	$80 + 30 = 110^\circ$
d)	136°E	20°E	
e)	10°W	38°E	
f)	90°W	12°W	
g)	14°E	83°W	

a) 108° b) 72° c) 110° d) 116° e) 48° f) 78° g) 97° **Subtopic: Distance along a great circle in nautical miles****Worked examples**

1. a) 3900 b) 4620 c) 6120 d) 4200

Exercise

1. a) 2400 b) 720 c) 2460 d) 3840 e) 9240 f) 3384
2. a) 34°S b) $(34^\circ\text{S}, 10^\circ\text{E})$
3. $(30^\circ\text{S}, 36^\circ\text{E})$
4. Q($0^\circ, 100^\circ\text{E}$), R ($0^\circ, 50^\circ\text{W}$)

Subtopic: Distance along a great circle in kilometres**Worked examples**

1. a) 333.7 km b) 5005 km c) 16683.3 km
2. a) 10° b) $(10^\circ\text{S}, 20^\circ\text{E})$

EXERCISE

1. a) 5116.2 km b) 444.9 km c) 10010 km d) 8341.7 km e) 13124.2 km
2. a) 180° b) $(0^\circ, 126^\circ\text{E})$
3. a) 11.5° b) Y($17.5^\circ\text{S}, 80^\circ\text{W}$) ($5.5^\circ\text{N}, 80^\circ\text{W}$)

Subtopic: Distance along a small circle in nautical miles**Worked examples**

1. a) 4596.3 nm b) 1200 nm

EXERCISE

1. a) 3382.9 nm b) 2700 nm c) 5022.5 nm d) 2630.2 nm
2. 72°

Subtopic: Distance along a small circle in kilometres

Worked examples

1. a)10137.9 km b)12019.2 km

EXERCISE

- a)10224.1 km b)8918.98 km c)2221.1 km d)5363.2 km e)8873.8 km

Subtopic: Shortest distance between two points on the earth's surface

Worked examples

1. 6000 nm
2. 5700 nm
3. a)6942.1 nm b)4800 nm

EXERCISE

1. a)3240 nm b)6300 nm c)9600 nm d)5100 nm
2. a)9788.1 nm b)7800 nm

Subtopic: Speed in knots

Worked examples

1. 200 knots
2. 143.2

EXERCISE

1. a)50 b)100 c)1405.7 d)2
2. a)120 b)1200 c)406 d)935

Subtopic: Longitude and time

EXERCISE

1. a)10 am b)1.20 pm c)3.20 pm d)8.36 am
2. 6 pm

REVISION QUESTIONS

1. a)C(70°N, 17°E) b)360 nm c)3 hrs 12 min d)1.20 pm
2. a) Q(0°, 10°W), R(30°S, 10°W), S (30°S, 45°W) b)337.5 c)8hrs 40 min
3. 5400 nm
4. a) (4.4°N, 62°E) b)(i)4426.9 nm (ii)10.25 hrs c)8.04 am
5. b)**correction** : position of town C (60°N, 133°W)
a)450 knots b)(i)9 hrs (ii) 6 hrs c) 1.28 pm

