Mark schemes

Q1.

(a) 085°

B1

(b) [8, 8.4]

May be implied by correct answer

B1

[640, 672]

ft their [8, 8.4] × 50

B1ft

[3]

Q2.

(a) 045

Strand (i) for a 3 figure bearing
0.45 or 45 is Q0

Q1

(b) South West or 225 (°)

SW but not West South

B1

(c) [115, 119]

B1

(d) [11, 11.5] (× 10)

M1

[110, 115]

SC1 for any measurement seen (in cm)
correctly multiplied by 10

A1

[5]

Q3.

270

B1

[1]

Q4.

(a) [6.9, 7.1] (cm)

B1

[345, 355]

ft their [6.9, 7.1] × 50

B1ft

Additional Guidance

[345, 355] without sight of [6.9, 7.1]

B1B1

(b) *R* marked [3.9, 4.1] cm

due South of *P*

B1 for
R marked [3.9, 4.1] cm from P
or
R marked due South of P
or
4 (cm) seen

B2

[4]

Q5.

(a) 250 000 ÷ 100 or 2500

or 250 000 ÷ 1000 or 250

100 × 1000 or 100 000

M1

250 000 ÷ 100 ÷ 1000

250 000 ÷ their 100 000

M1dep

2.5

A1

(b) 5.5 seen

B1

5.5 × 4

Do not accept 6 × 4

or their min × 4

5.5 < min < 6

M1

22

SC2 for 26

A1ft

[6]

Q6.

(a) (0)55 ± 2°

B1

(b) their 55 + 180

235

SC1 If reflex angle is given in (a) eg 235,
allow subtraction of 180 eg 235 − 180 = 55

A1 ft

(c) Valid reason

eg 180 + 180 = 360 (so cannot be greater than 180)
190 + 180 = 370 (impossible)
max possible 360
180 × 2 = 360

B1

[4]

Q7.

(a) Vertical line with

height [6.9, 7.1] cm marked

Point marked [2.4, 2.6] cm on base line from RHS (or from base of wall)

Correct ladder drawn

B1 for first or second criterion met

B2

(b) [7.2, 7.7]

ft with a tolerance of ± 2.5 mm (0.25 cm)

B1ft

[3]

Q8.

[7.7, 7.9]

B1

their 7.8 × 50

M1

[385, 395]

A1ft

Additional Guidance

7 cm = 350 km is B0 M1 A1ft

[3]

Q9.

(a) Library

B1

(b) 180°

B1

(c) [5.6, 6] (cm) or [56, 60] (mm)

May be on map

B1

their 5.8 × 200 or their 58 × 20

M1

[1120, 1200]

ft B0M1 if their 5.8 × 200 correctly evaluated

A1ft

Additional Guidance

[5.6, 6] can come from measurement or Pythagoras' Theorem

Answer in correct range with no incorrect evaluation

B1M1A1

5.6 × 200, answer 1160 (incorrect evaluation seen)

B1M1A0

6.2 × 200 = 1240

B0M1A1ft

3 down, 5 across, 8 × 200 = 1600

B0M1A1ft

3 × 200, 5 × 200, answer 1600

B0M1A1ft

3 and 5 seen, answer 1600

B0M1A1ft

7 seen, answer 1400 (scale method implied)

B0M1A1ft

Answer only 1400

B0M0A0ft

Answer [1.12, 1.2] km with or without [1120, 1200] seen

B1M1A0

(d) Valid reason

Indication that the shortest distance between two points is a straight line, but you can't generally walk in a straight line between two places in a town

B1

Additional Guidance

You would have to walk along the streets

B1

There wouldn't be a straight road between them

B1

You would have to walk along and then down

B1

There might be buildings in the way

B1

You can't go as the crow flies

B1

There may be obstacles in the way

B1

It isn't a straight path in real life

B1

Can't go directly

B1

There might be buildings in the way such as the library

B0

The monument is in the way

B0

It's not a walking route

B0

There is more than one route

B0

May have taken a different route

B0

Walking is slower

B0

You may need to go past the town hall

B0

You might take a detour

B0

[6]

Q10.

1 km = 1000 m
or 1m = 100 cm
or 1 km = 100 000 cm
seen or implied

eg 1200 m
120 000 (cm)
0.06 m
0. 000 06 (km)

M1

6 : 120 000
or 120 000 ÷ 6

oe

M1dep

1 : 20 000

A1

[3]

Q11.

(a) 15

B1

(b) No and valid reason

eg No and not in opposite directions

No and not in a straight line

No and 3rd side shorter than the sum of the other 2 sides

B1 No and incomplete reason

B2

Additional Guidance

If neither box ticked then no may be implied by statement

(c) 230 − 165 or 65
or 165 − 75 or 90

May be on diagram

M1

Carly and 90 and 65

Angles may be on diagram

A1

[5]

Q12.

Use of tan

$\sqrt{40^2 + 55^2}$ *and use of sin, cos, sine rule or cosine rule*

M1

$\tan^{-1}(\frac{55}{40})$ or $\tan^{-1}(\frac{40}{55})$

or $\tan A = (\frac{55}{40})$ or $\tan B = (\frac{40}{55})$

oe

eg $\sin^{-1}\left(\frac{55}{\sqrt{40^2 + 55^2}}\right)$

M1

53.9(…) or 54 or 54.0
or 36.(…) or 36.0

A1

143.9(…) or 144

SC3 for 324 or 323.9…

A1

Additional Guidance
Scale drawing can score 0, 3 or 4 but must be accurate

$\tan = \frac{55}{40}$ or $\tan = \frac{40}{55}$

M1M1

$\tan = \frac{55}{40}$ or $\tan = \frac{40}{55}$ or $\tan A = (\frac{40}{55})$ or $\tan B = (\frac{55}{40})$ recovered

M1M1

$\tan = \frac{55}{40}$ or $\tan = \frac{40}{55}$ or $\tan A = (\frac{40}{55})$ or $\tan B = (\frac{55}{40})$ not recovered

M1M0

[4]