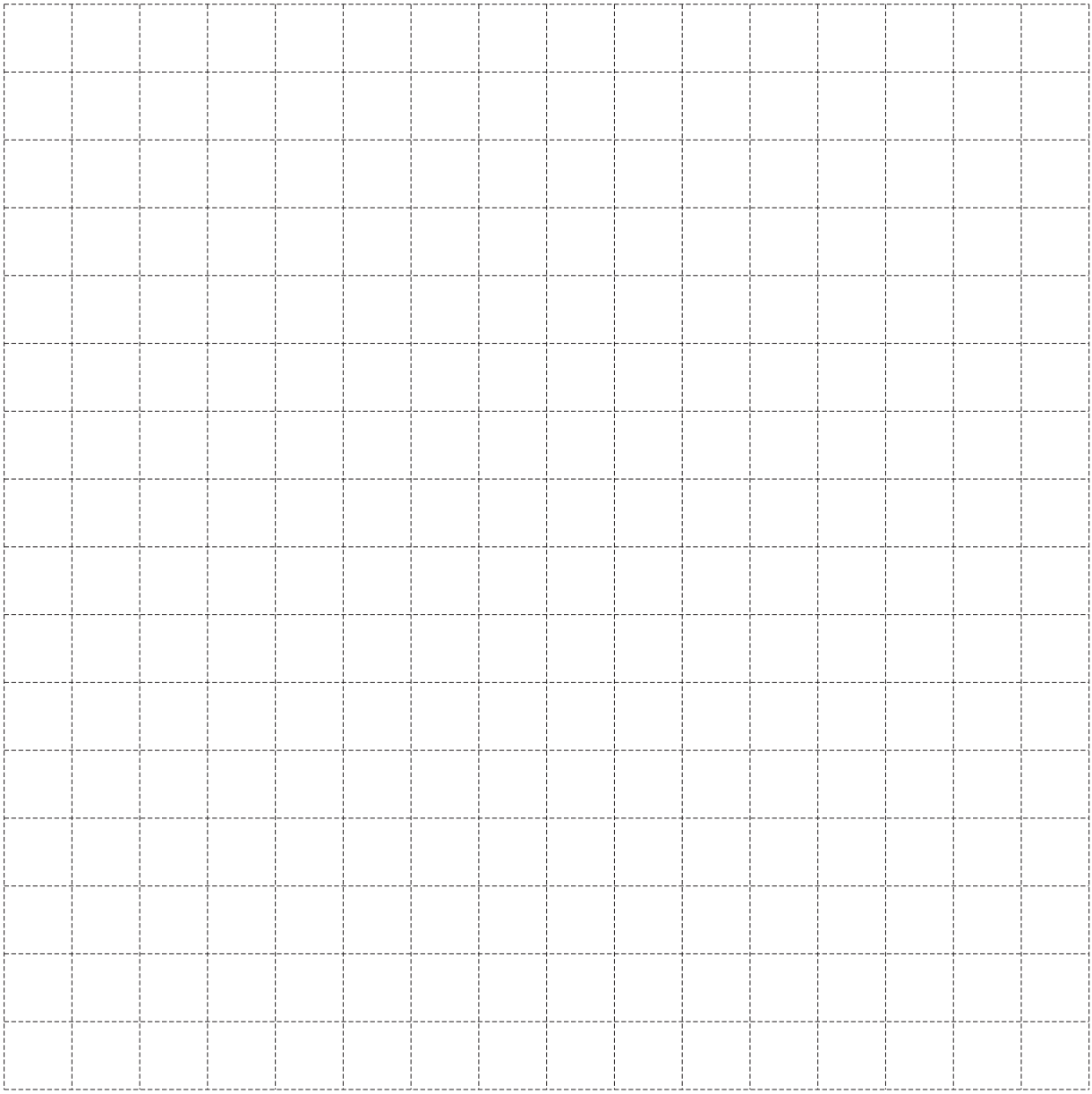
4024 Mathematics Paper 1 - Geometry

Topical questions | 17 questions

1. Question | 4024 May-June 2025 P1 V2 Q3

3 The area of one face of a cube is $9\,\text{cm}^2$.

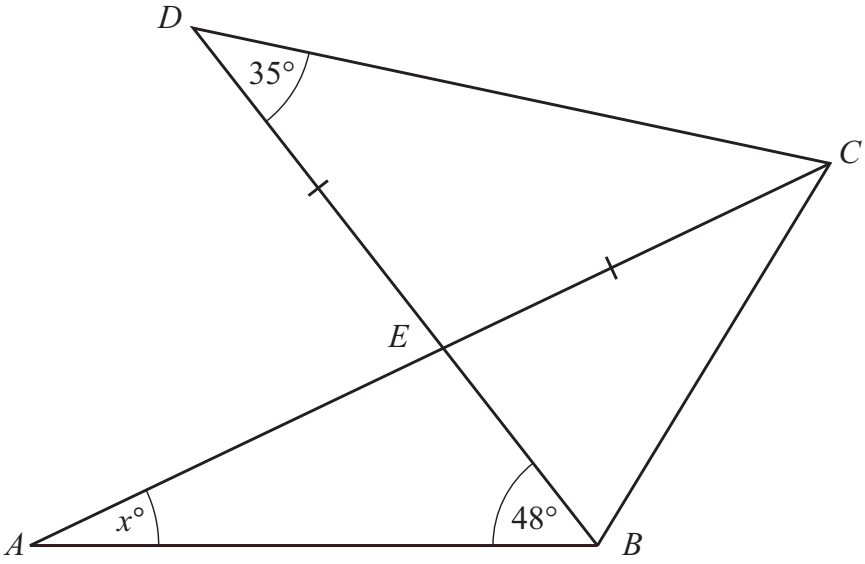
On the 1 cm grid, draw an accurate net of the cube.



[3]

2. Question | 4024 May-June 2025 P1 V2 Q4

4



NOT TO SCALE

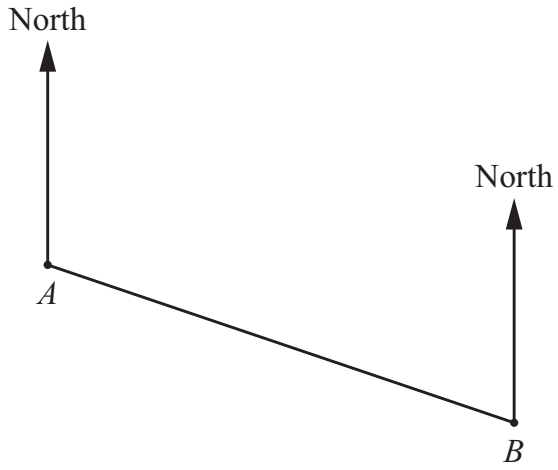
AEC and BED are straight lines.
$ED = EC$.

Find the value of x.

$x =$ ..... [3]

3. Question | 4024 May-June 2025 P1 V2 Q6

6 The scale drawing shows the positions of two villages, *A* and *B*.
The scale is 1 cm to 5 km.



Scale: 1 cm to 5 km

(a) Find the actual distance between village *A* and village *B*.

..... km [2]

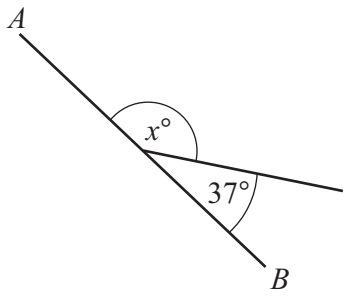
(b) Village *C* is on a bearing of 060° from village *A*.
Village *C* is on a bearing of 320° from village *B*.

Find and label the position of village *C* on the scale drawing. [2]

4. Question | 4024 May-June 2025 P1 V3 Q3

3 **(a)**

NOT TO SCALE



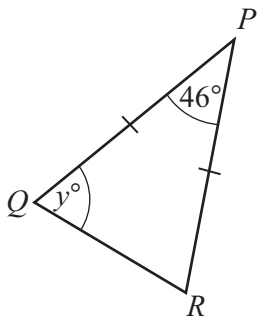
AB is a straight line.

Work out the value of *x*.

x = ... [1]

(b)

NOT TO SCALE



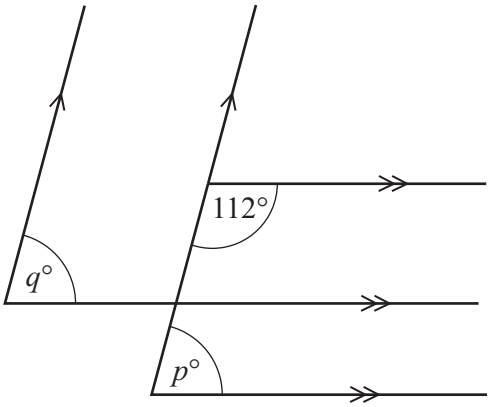
PQR is an isosceles triangle with *PQ* = *PR*.
Angle *QPR* = 46°.

Work out the value of *y*.

y = ... [2]

5. Question | 4024 Oct-Nov 2025 P1 V1 Q4

4 The diagram shows five straight lines.



NOT TO SCALE

The diagram shows three horizontal parallel lines and two sloping parallel lines.

(a) Find the value of p.
Give a geometrical reason to explain your answer.

p = ... because .....

..... [2]

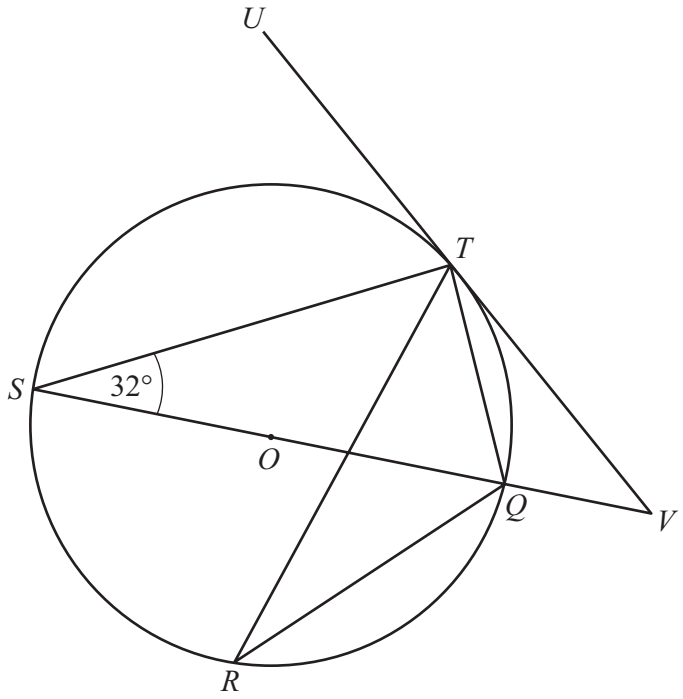
(b) Find the value of q.
Give a geometrical reason to explain your answer.

q = ... because .....

..... [2]

6. Question | 4024 Oct-Nov 2025 P1 V1 Q16

16



NOT TO SCALE

Points Q, R, S and T lie on a circle, centre O.
UV is a tangent to the circle at T.
$SOQV$ is a straight line.
Angle $QST = 32°$.

(a) Find angle QRT.
Give a geometrical reason to explain your answer.

Angle QRT = ... because .....

..... [2]

(b) Find angle TQS.

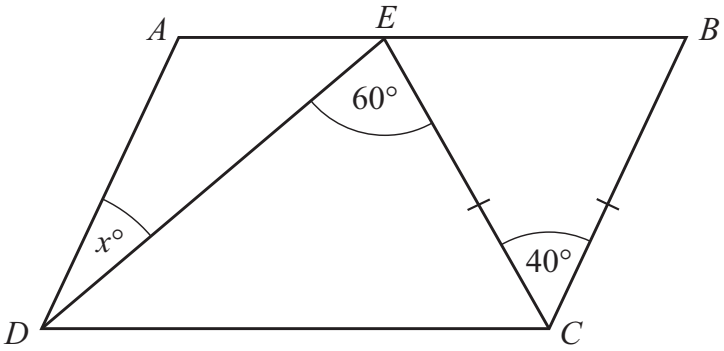
Angle TQS = ... [2]

(c) Find angle TVQ.

Angle TVQ = ... [2]

7. Question | 4024 Oct-Nov 2025 P1 V2 Q3

3



NOT TO SCALE

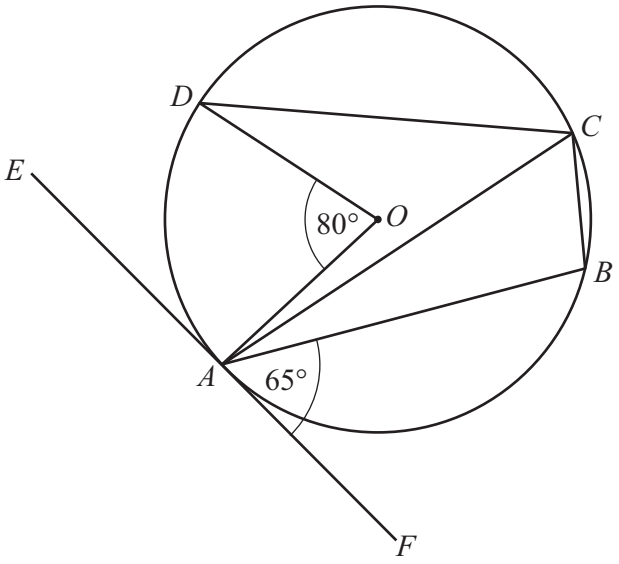
$ABCD$ is a parallelogram.
E is a point on AB and $EC = BC$.
Angle $ECB = 40°$ and angle $DEC = 60°$.

Find the value of x.

$x =$ ..... [4]

8. Question | 4024 Oct-Nov 2025 P1 V2 Q14

14



NOT TO SCALE

A, B, C and D are points on a circle, centre O.
EF is a tangent to the circle at A.
Angle $BAF = 65°$ and angle $AOD = 80°$.

Find angle BCD.
Give a geometrical property to explain each step of your working.

.....

.....

.....

.....

.....

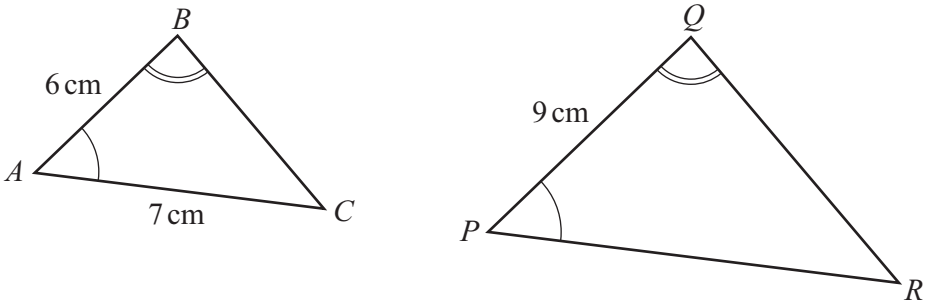
.....

Angle $BCD =$ .....

[4]

9. Question | 4024 Oct-Nov 2025 P1 V2 Q17

17



NOT TO SCALE

Triangle ABC is similar to triangle PQR.

(a) Calculate PR.

$PR =$ ..... cm [2]

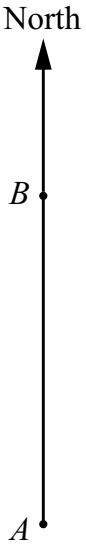
(b) The area of triangle ABC is $16\,\text{cm}^2$.

Calculate the area of triangle PQR.

..... cm^2 [2]

4 The scale drawing shows the position of town A and town B.

Town B is due north of town A.
The scale of the drawing is 1 cm to 5 km.



Scale: 1 cm to 5 km

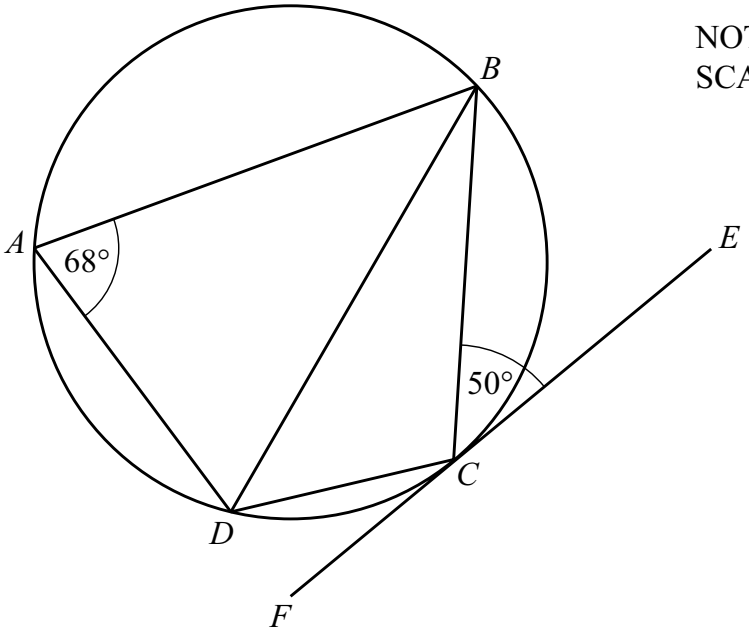
(a) Town C lies to the east of the line AB.
It is 25 km from A and 40 km from B.

Using a ruler and a pair of compasses only, construct the position of town C on the scale drawing. [3]

(b) Measure the bearing of town C from town A.

..... [1]

14



A, *B*, *C* and *D* are points on the circumference of a circle.
EF is a tangent to the circle at *C*.
Angle *BAD* = 68° and angle *BCE* = 50°.

Find angle *CBD*.
Give a geometrical property to explain each step of your working.

.....

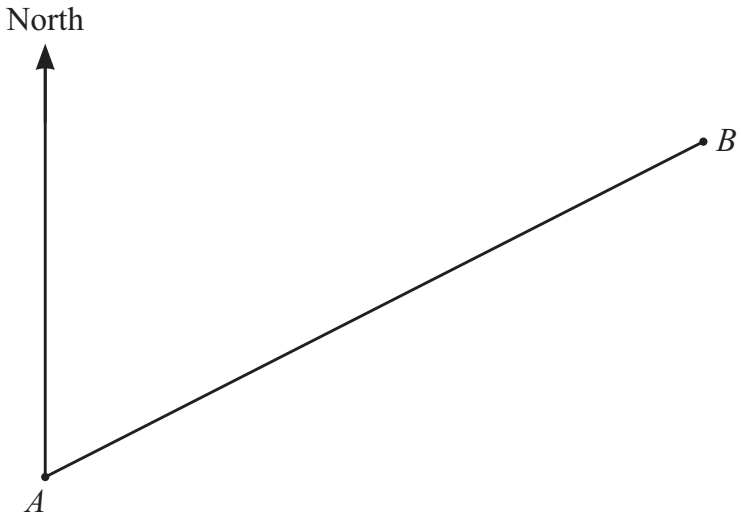
.....

.....

Angle *CBD* = ... [5]

12. Question | 4024 May-June 2026 P1 V2 Q5

5 The scale drawing shows the positions of two villages, *A* and *B*.
The scale is 2 cm to 1 km.



scale: 2 cm to 1 km

Farm *C* is 4 km from village *A* and 2.5 km from village *B*.
Farm *C* is further south than village *B*.

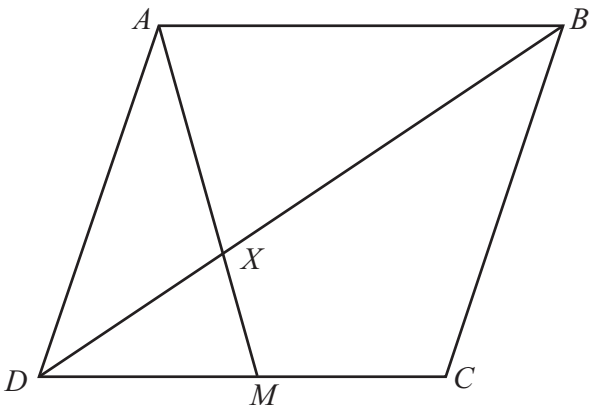
(a) **Using a ruler and compasses only**, construct the position of farm *C*. [3]

(b) Measure the bearing of farm *C* from village *A*.

..... [1]

13. Question | 4024 May-June 2026 P1 V2 Q16

16



NOT TO SCALE

ABCD is a rhombus.
M is a point on *DC*.
AM and *BD* intersect at *X*.

(a) Show that triangle *AXB* is similar to triangle *MXD*.
Give a geometrical reason for each statement you make.

.....

.....

.....

..... [3]

(b) *M* is the midpoint of *DC*.
$AB = 8\,\text{cm}$ and $BD = 15\,\text{cm}$.

(i) Calculate *DX*.

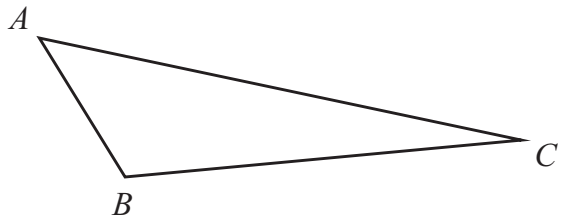
DX = ... cm [2]

(ii) Complete the statement.

area of triangle *AXB* : area of triangle *MXD* = ... : 1 [1]

14. Question | 4024 May-June 2026 P1 V3 Q2

2 **(a)** The diagram shows triangle ABC.



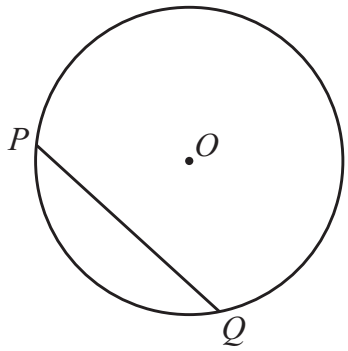
Choose a word from this list to complete each statement.

acute	**equilateral**	**isosceles**	**obtuse**	**reflex**	**scalene**

(i) Triangle ABC is ..... [1]

(ii) Angle ABC is ..... [1]

(b) P and Q are points on a circle, centre O.

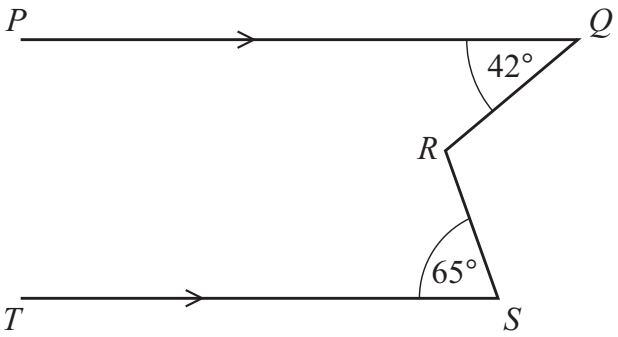


Use the correct geometrical term to complete the statement.

The line PQ is a ..... of the circle. [1]

15. Question | 4024 May-June 2026 P1 V3 Q8

8



NOT TO SCALE

PQ is parallel to TS.
Angle $PQR = 42°$ and angle $RST = 65°$.

Work out the reflex angle QRS.

reflex angle $QRS =$ ..... [2]

16. Question | 4024 May-June 2026 P1 V3 Q11

11 **(a)** The bearing of town A from town B is 162°.

Find the bearing of town B from town A.

..... [2]

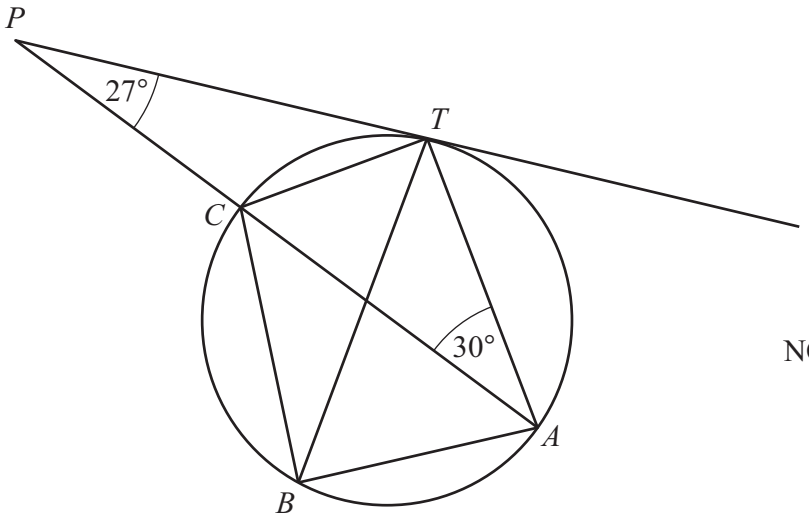
(b) On a map, the distance of town A from town B is 10 cm.
The actual distance of town A from town B is 20 km.

Work out the scale of the map in the form 1 : n.

1 : ..... [2]

17. Question | 4024 May-June 2026 P1 V3 Q15

15



NOT TO SCALE

A, *B*, *C* and *T* are points on the circumference of a circle.
PT is a tangent to the circle at *T*.
PCA is a straight line.
Angle *APT* = 27° and angle *TAP* = 30°.

(a) Find angle *TBC*.

angle *TBC* = ... [1]

(b) Find angle *PTC*.

angle *PTC* = ... [1]

(c) Find angle *ATC*.

angle *ATC* = ... [2]

(d) Find angle *ABC*.

angle *ABC* = ... [1]