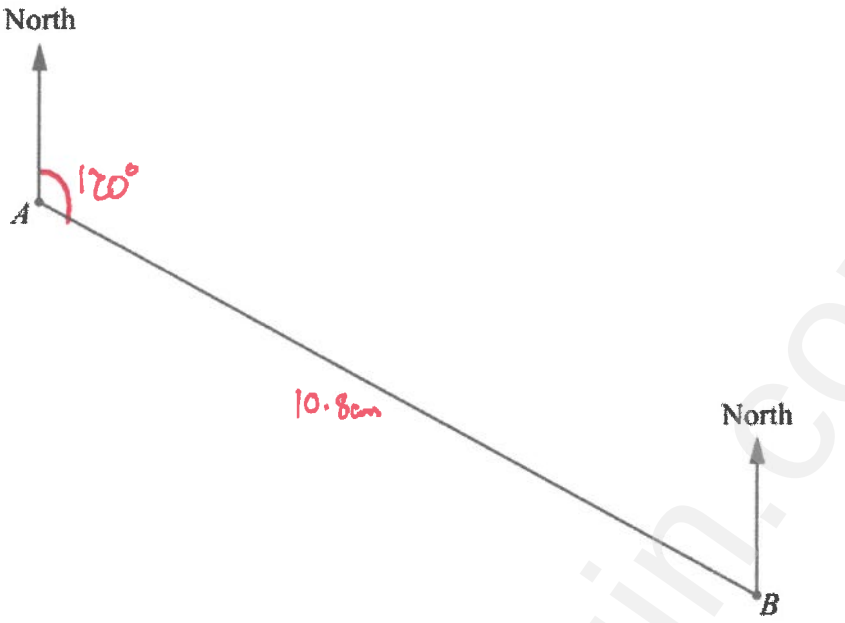
5




Two towns, $A$ and $B$, are shown on a map.
The scale of the map is 1 cm to 3 km.

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

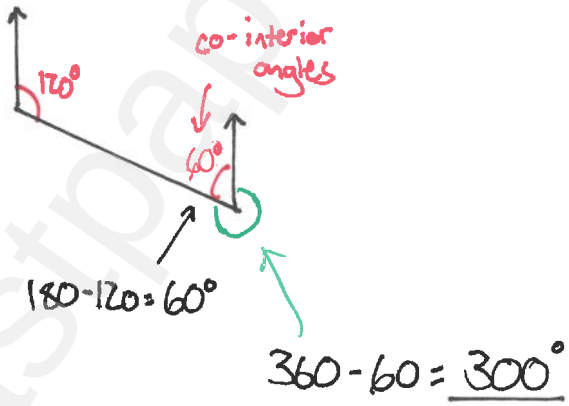
$10.8 \times 3 = 32.4$

32.4 km [1]

**(b)** Measure the bearing of $B$ from $A$.

120° [1]

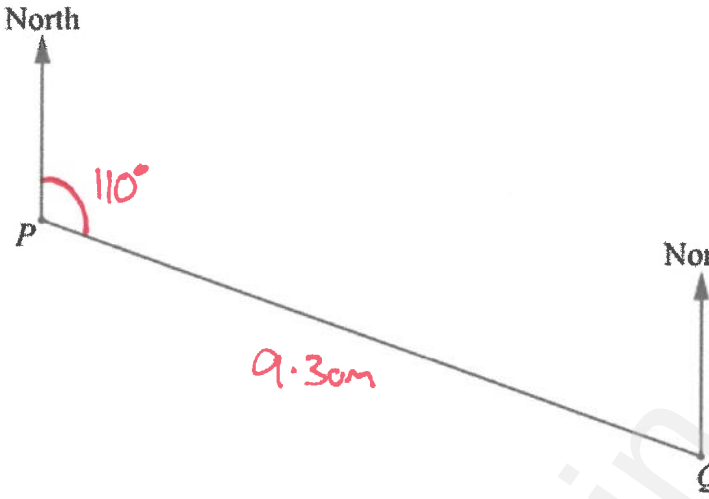
**(c)** Calculate the bearing of $A$ from $B$.
You must show all your working.




300° [2]

2 The scale drawing shows the positions of two villages, $P$ and $Q$.

The scale is 1 cm represents 0.5 km.




**(a)** Find the actual distance between village $P$ and village $Q$.

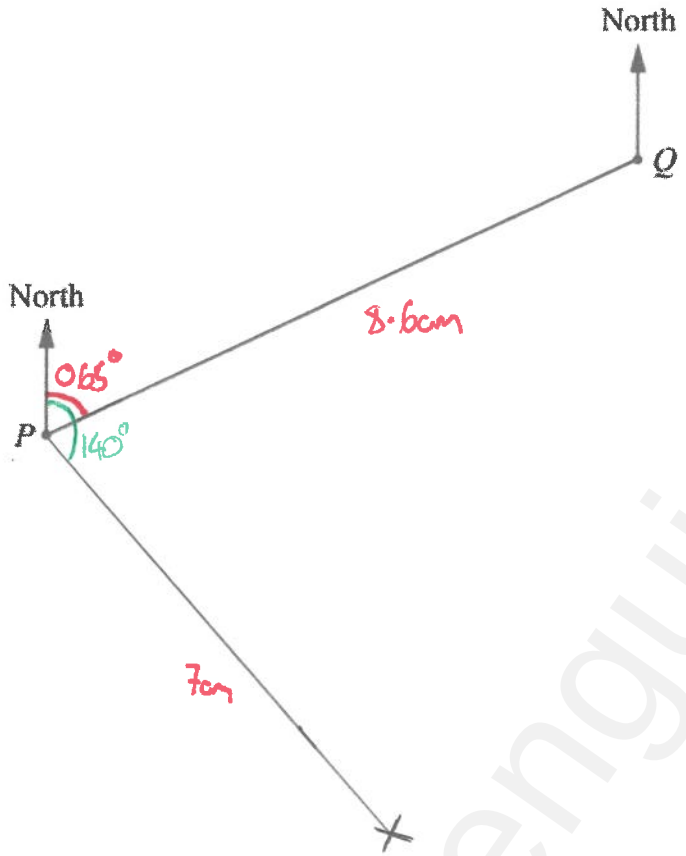
$9.3 \times 0.5 = 4.65$

4.65 km [2]

**(b)** Measure the bearing of village $Q$ from village $P$.

110° [1]

6 The scale drawing shows the positions of two towns, $P$ and $Q$.
The scale is 1 cm represents 4 km.




Scale: 1 cm to 4 km

**(a)** Find the actual distance between town $P$ and town $Q$.

$8.6 \times 4 = 34.4$

34.4 km [2]

**(b)** Measure the bearing of town $Q$ from town $P$.

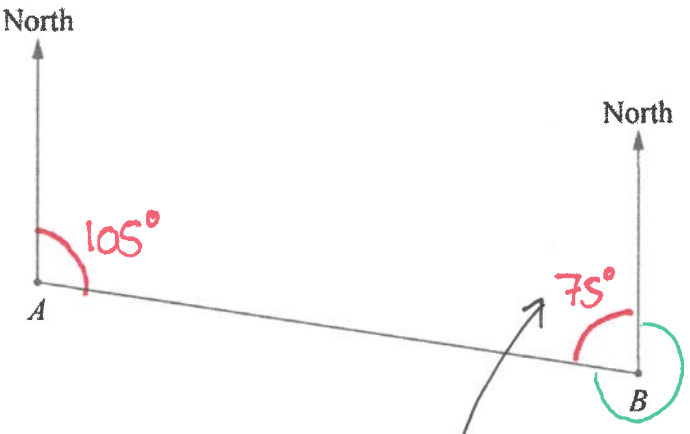
065° [1]

**(c)** Town $X$ is 28 km from town $P$ on a bearing of 140°.

On the scale drawing, mark the position of town $X$. [2]

$28 \div 4 = 7\text{cm}$

9




NOT TO SCALE

360 - 75 = 285°

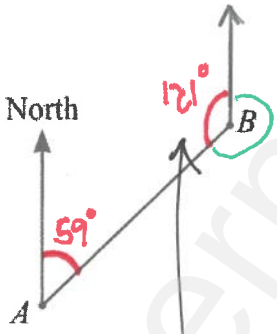
The bearing of $B$ from $A$ is 105°.

Find the bearing of $A$ from $B$.

co-interior angles:
180 - 105 = 75°

285° [2]

9




NOT TO SCALE

The bearing of $B$ from $A$ is 059°.

Work out the bearing of $A$ from $B$.

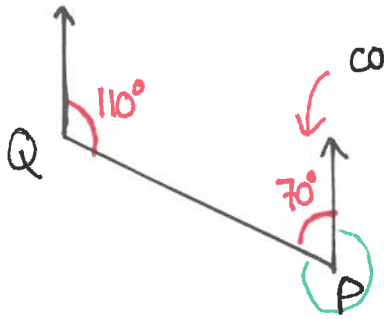
co-interior angles:
180 - 59 = 121°

360 - 121 = 239°

239° [2]

7 The bearing of $P$ from $Q$ is 110°.

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

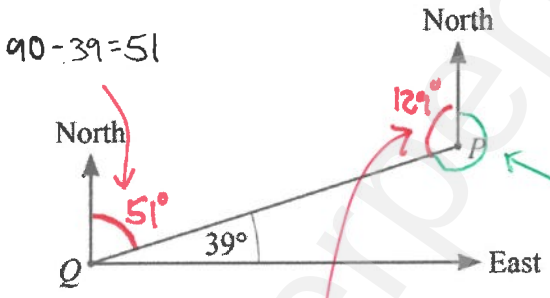



co-interior angles:
180 - 110 = 70°

360 - 70 = 290°

290° [2]

7




90 - 39 = 51

NOT TO SCALE

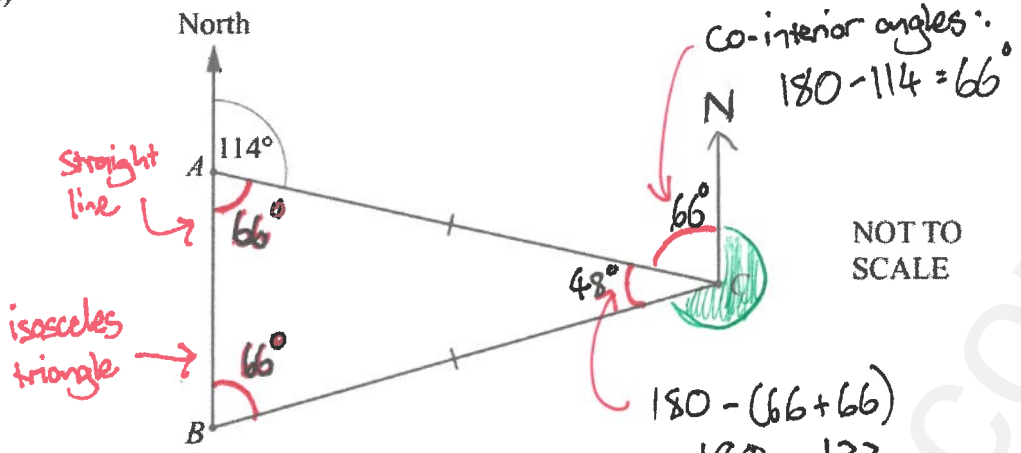
360 - 129 = 231°

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

co-interior angles:
180 - 51 = 129°

231° [2]

4 (a)




$A$, $B$ and $C$ are three towns and the bearing of $C$ from $A$ is 114°.
$B$ is due south of $A$ and $AC = BC$.

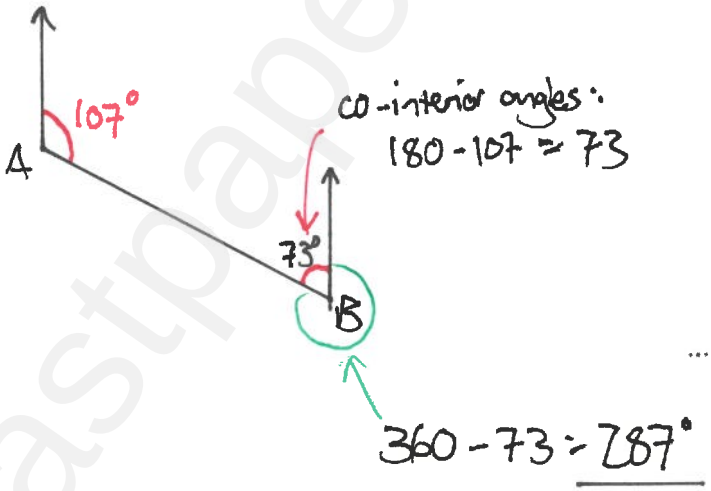
Calculate the bearing of $B$ from $C$.

Bearing (in green) = 360 - (66 + 48)
= 360 - 114
= 246°

246° [3]

13 The bearing of $B$ from $A$ is 107°.

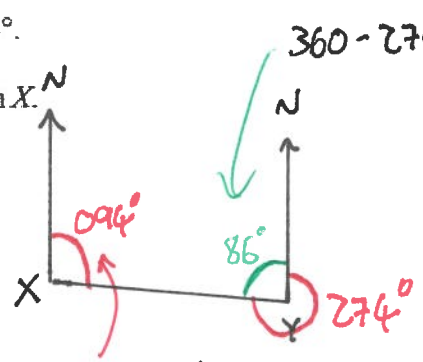
Calculate the bearing of $A$ from $B$.




287° [2]

**8** The bearing of $X$ from $Y$ is 274°.

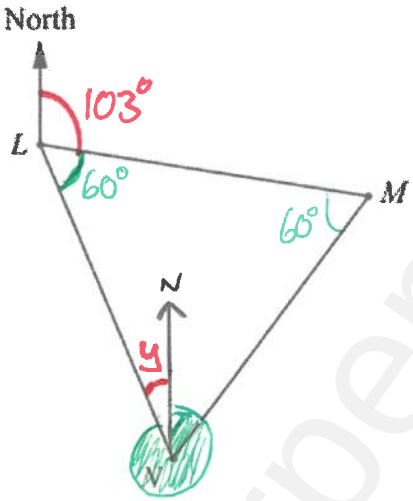
Calculate the bearing of $Y$ from $X$.




co-interior angles:
180 - 86 = 94°

094° [2]

**10**




NOT TO SCALE

On a map, the positions of the towns $L$, $M$ and $N$ form an equilateral triangle.
The bearing of $M$ from $L$ is 103°.

Work out the bearing of $L$ from $N$.

Bearing of N from L:
103 + 60 = 163°

Find angle "y" using co-interior angles:
y = 180 - 163
= 17°

Bearing of L from N (green):
360 - 17 = 343°

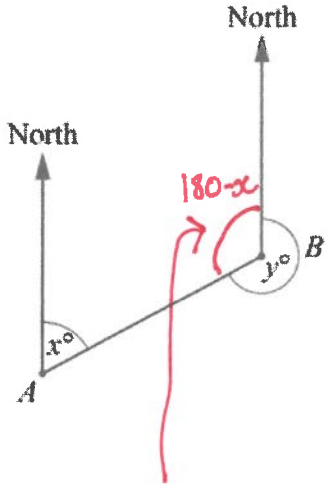
343° [2]

**18** The bearing of $B$ from $A$ is $x°$.
The bearing of $A$ from $B$ is $y°$.
$x : y = 2 : 7$

Calculate the value of $y$.

$\frac{x}{y} = \frac{2}{7}$

$x = \frac{2}{7}y$ (1)




NOT TO SCALE

Co-interior angles sum to 180°:

$= 180 - x$

Angles around a point sum to 360°:

$(180 - x) + y = 360$

$180 - x + y = 360$

$-180 \qquad -180$

$y - x = 180$ (2)

Sub. (1): $y - \frac{2}{7}y = 180$

$\frac{5}{7}y = 180$

$\times 7 \qquad \times 7$

$5y = 1260$

$\div 5 \qquad \div 5$

$y = 252°$

$y =$ 252° [3]