Topic 3 - Measuring Lengths & Angles

1

Two statues are 8 kilometres 23 metres apart.

A map-maker incorrectly labels the distance between the statues on a map. The incorrect distance is 23 km 8 m.
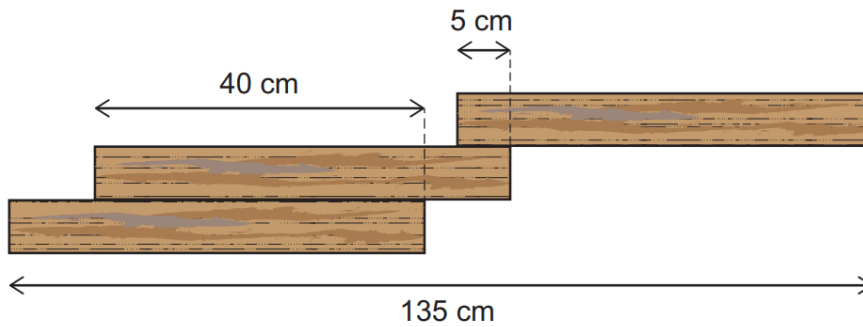
What is the difference between the correct and incorrect distances?

A   14 km 85 m

B   14 km 985 m

C   15 km 15 m

D   15 km 85 m

E   15 km 985 m

2

Three planks of wood all have the same length. They are placed next to each other as shown.

5 cm

40 cm

135 cm

[diagram not to scale]

What is the length of one plank of wood?

A   45 cm

B   50 cm

C   60 cm

D   75 cm

E   85 cm

3

Five friends live in houses on a long straight road in this order:

Felipe, Gina, Heng, Jood, Kerry

Felipe lives 400 m from Heng and 850 m from Kerry.

Gina lives three times as far from Felipe as she lives from Heng.

Gina and Jood live equal distances from Heng.
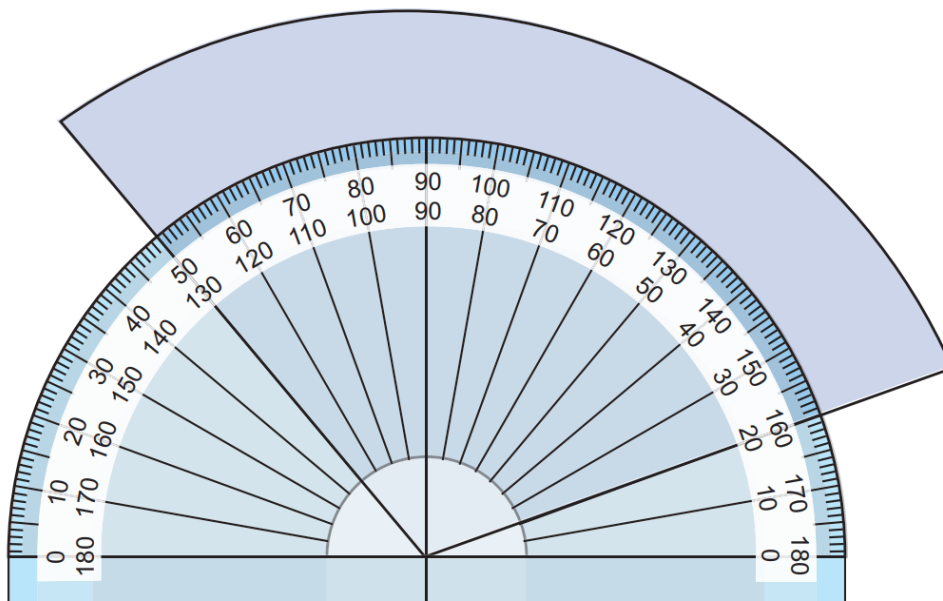
How far does Jood live from Kerry?

A   150 m

B   250 m

C   350 m

D   650 m

E   750 m

4

Bob is measuring the obtuse angle between the two straight sides of the blue shape.
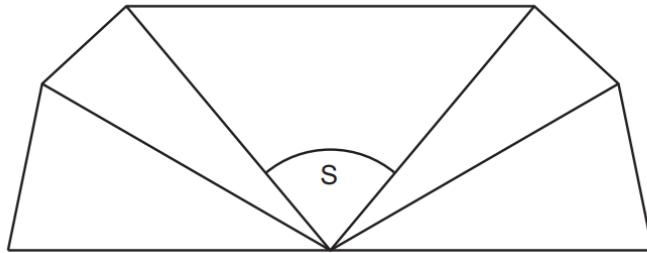
He places a protractor over the angle like this:

What is the size of this angle?

A   110°

B   130°
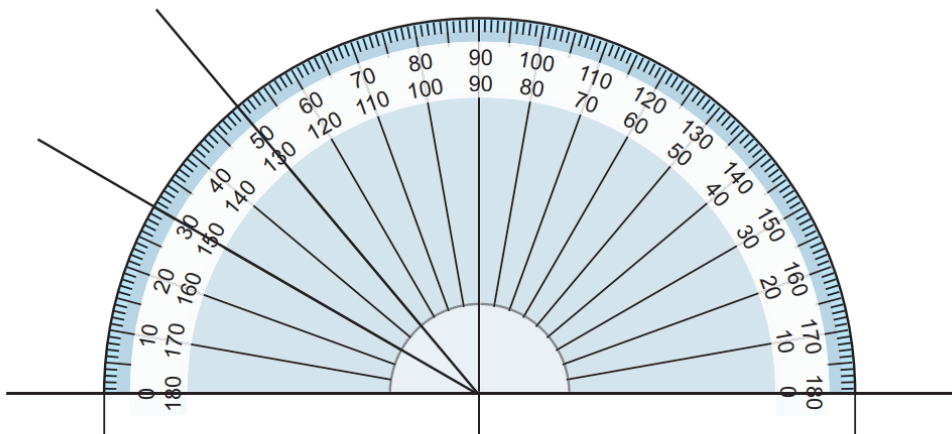
C   150°

D   160°

E   210°

5

Noah is drawing an accurate copy of this shape:

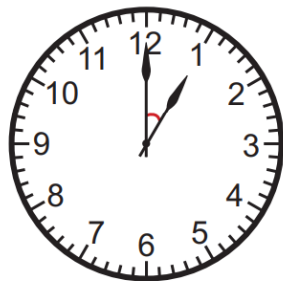The shape has one line of symmetry.

He starts drawing the shape as follows:

What is the size of angle S?

A 50°

B 80°

C 90°

D 100°

E 130°

6

The angle, measured clockwise, from the minute hand to the hour hand at 1:00 pm is 30°.

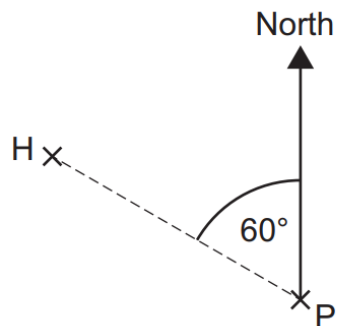What will the angle, measured clockwise, from the hour hand to the minute hand be at 1:30 pm?

A   45°

B   60°

C   120°

D   135°

E   150°

7

A boy is standing at point P, facing **east**.
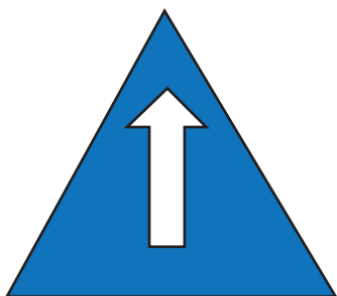
He turns clockwise to face a house which is at point H.

North

H ×

60°

×P

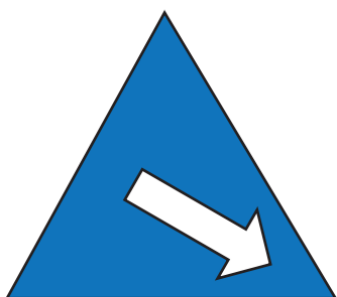What is the angle of his turn?

A 30°

B 60°

C 150°

D 210°

E 300°

8

The equilateral triangle above is rotated anti-clockwise into the position shown below.

Through what angle is it rotated anti-clockwise?

A   60°
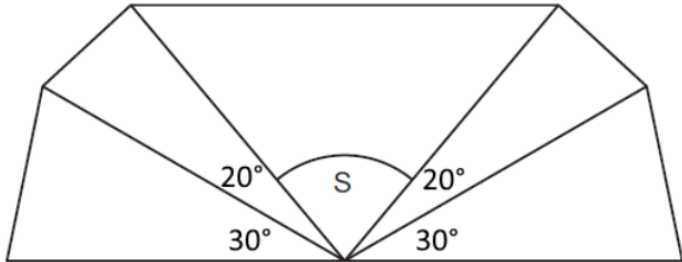
B   120°

C   180°

D   240°

E   300°

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Answer Key

1	B
2	C
3	C
4	A
5	Reading off the protractor, Noah has constructed lines at 30° and then 20° further round at 50°. Since the shape has one line of symmetry, the angles in his shape must be 30°, 20°, S, 20° and 30°: A straight angle is 180° so the missing angle S must be 180° − 20° − 30° − 20° − 30° = 80°. So the correct answer is **B 80°**. Alternatively, we could use the line of symmetry to work out that the two lines at each side of S will be at 50° and 130° on the protractor, and 130° − 50° = 80°.
6	D
7	D

8	An equilateral triangle has rotational symmetry of order 3, so it needs to turn through multiples of 120° to fit exactly on itself, because 360 ÷ 3 = 120.
	The diagram shows how the triangle is transformed by rotating 120° anti-clockwise twice:
	So the final image is after rotating 2 × 120° = 240° anti-clockwise, so the correct answer is **D 240°**.