GCSE Mathematics

Unit 2: Calculator Allowed

Intermediate Tier

County Revision Paper 3
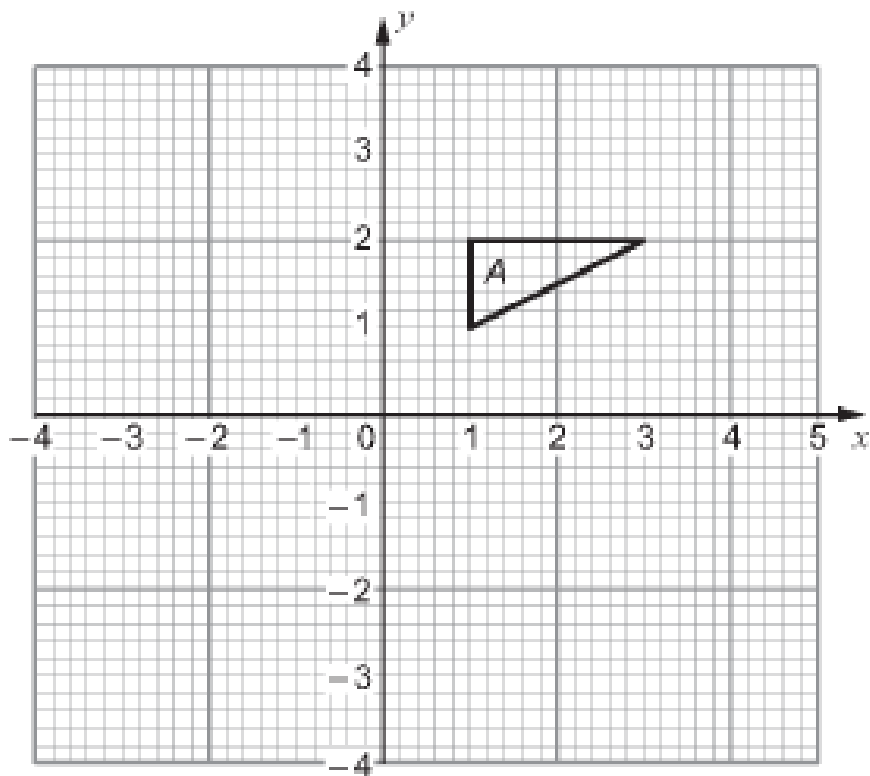
(Topics Relating to *Shape & Measures*)

60 Minutes

Student Name: _____

Question	Maximum Mark	Mark Awarded
1	2	
2	2	
3	2	
4	2	
5	3	
6	8	
7	2	
8	3	
9	3	
10	4	
11	3	
12	5	
13	3	
14	3	
15	5	
16	5	
17	4	
18	3	
19	2	

1. Rotate triangle A through 90° anticlockwise about the point (2, -1)

[2]

2. Reflect the shape in the line x = 2
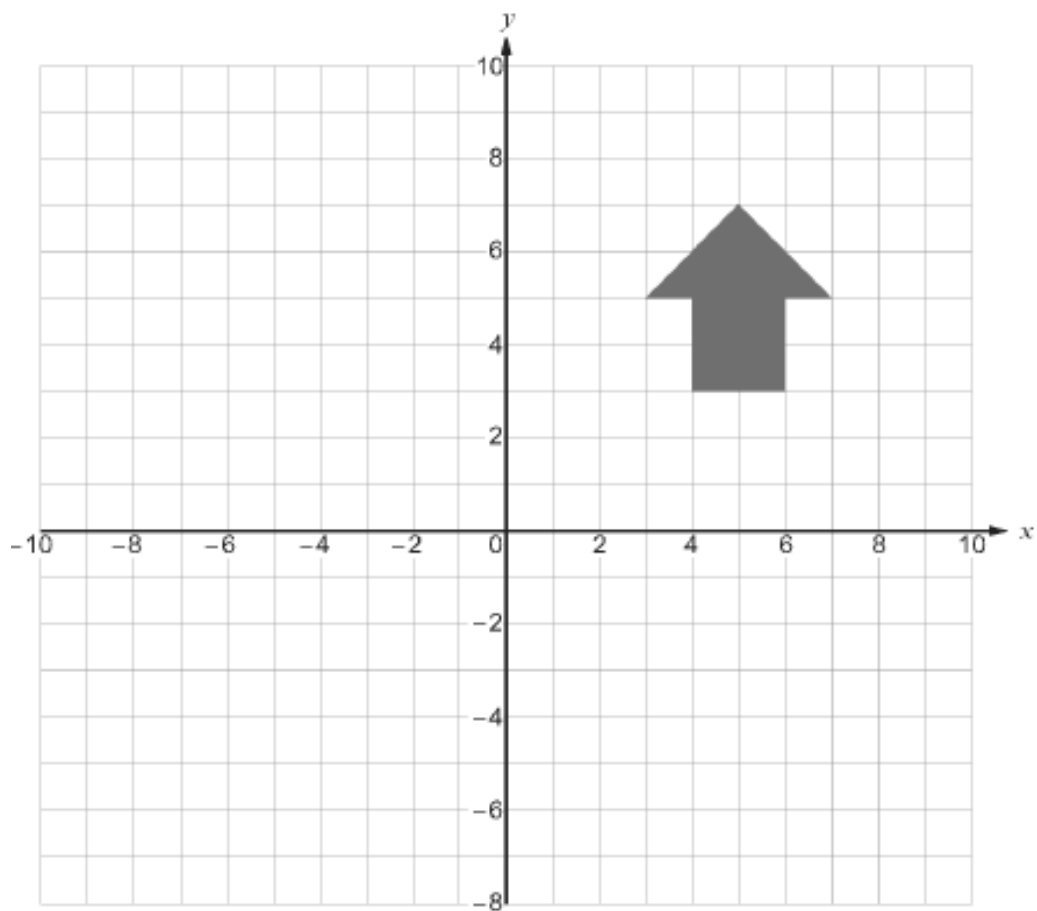
[2]

3. (a) Translate the triangle shown below by the vector $\begin{pmatrix} -3 \\ -8 \end{pmatrix}$
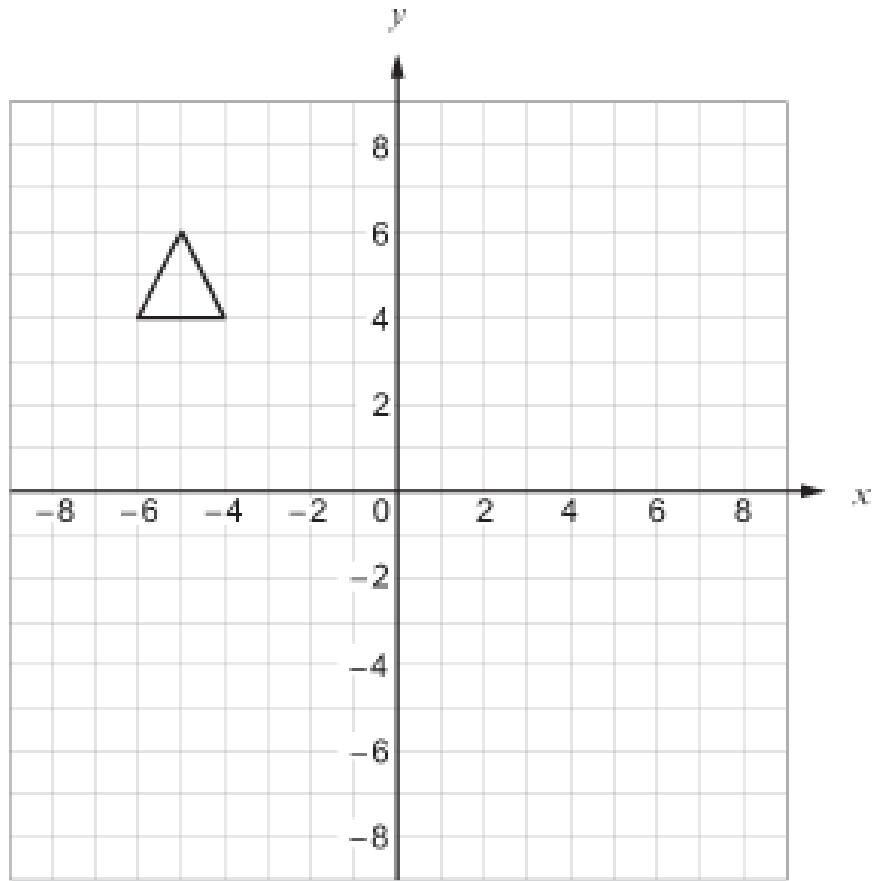
[1]

(b) Write down the vector that will reverse this translation [1]

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4. Using the point B as the centre, enlarge the quadrilateral by a scale factor of 2.
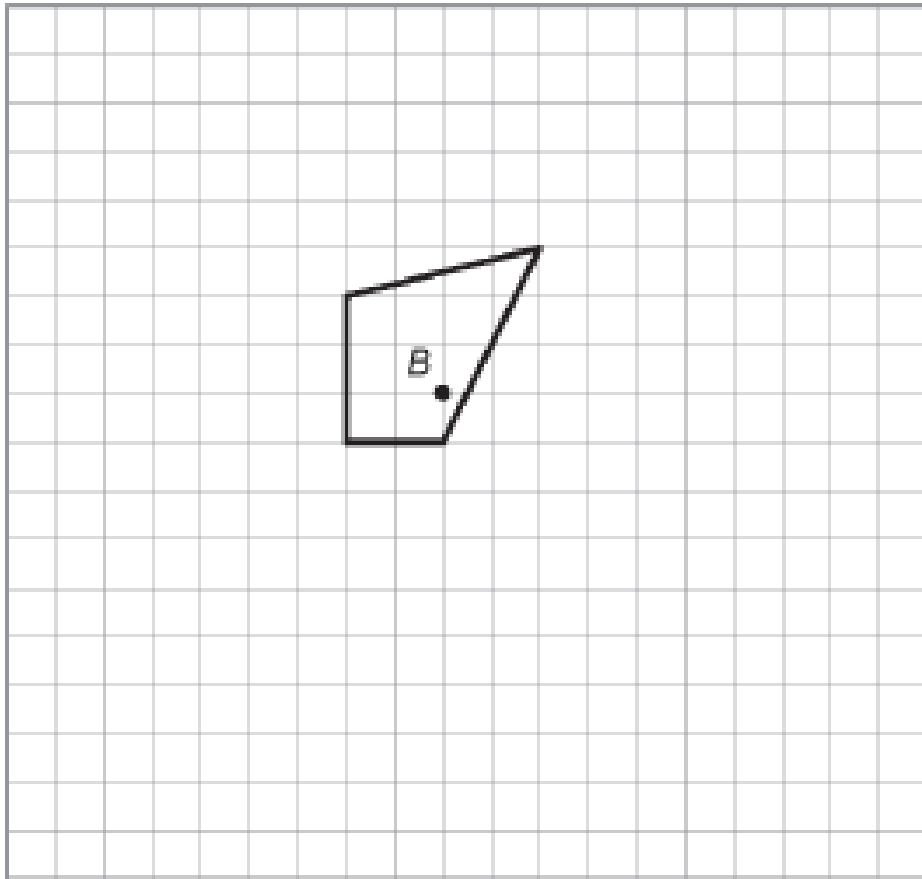
[2]

5. Describe fully the transformation which maps shape A on to shape B
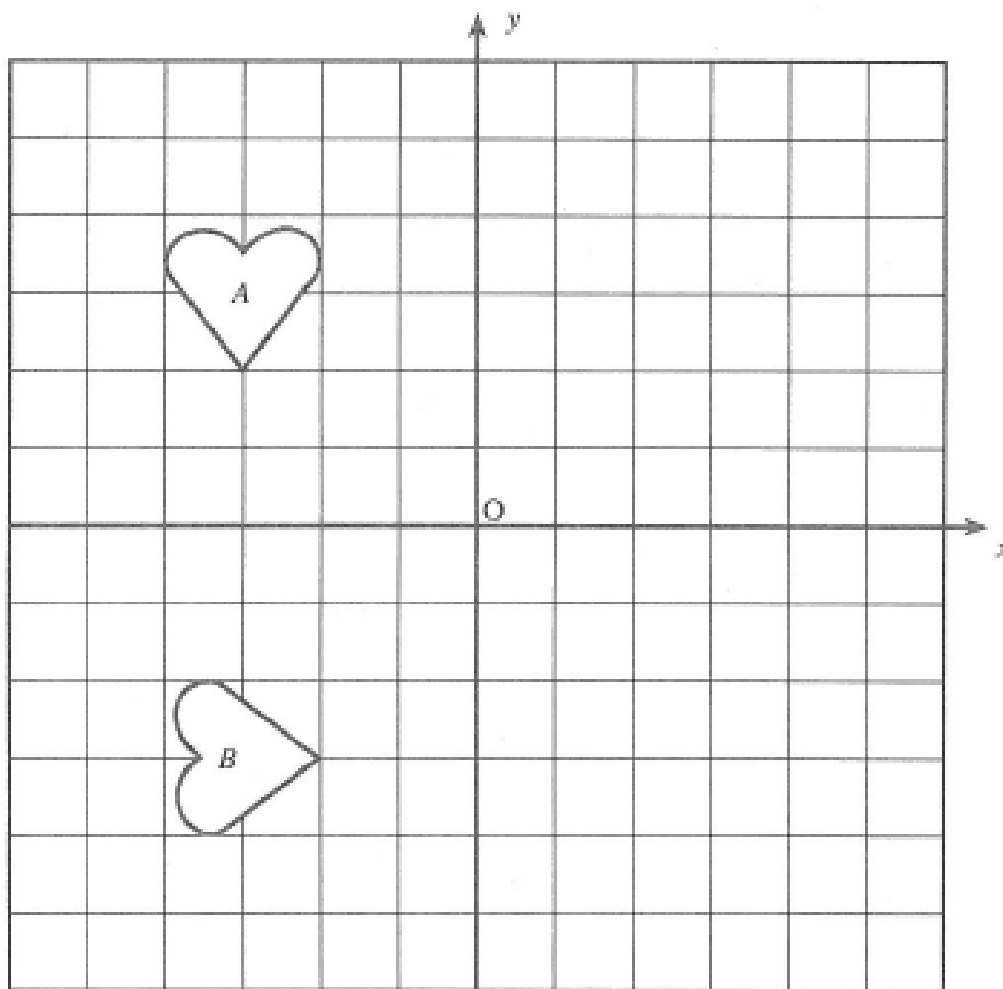
[3]

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6. The following table is an extract from a coach timetable for coaches going from Swansea to Gatwick North and Gatwick South airport terminals.

Place	Coaches				
Swansea	02:15	04:15	06:15	07:00	08:30
Port Talbot	02:30	04:30	06:30	07:15	08:45
Bridgend	02:45	04:45	06:45	07:30	09:00
Cardiff	03:20	05:20	07:25	08:30	09:45
Newport	03:45	05:45	07:55	09:00	10:15
Heathrow	06:35	08:55	11:05	13:00	12:55
Gatwick North	07:35	09:45	11:55	13:50	14:00
Gatwick South	07:45	09:55	12:05	14:00	14:10

The first column (Swansea ... Gatwick South) is headed **Departure times**.

(a) How many coaches arrive at Newport between 4 a.m. and 10 a.m.?

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[1]

(b) Mary catches the 04:45 coach from Bridgend to go to Gatwick South. How long should she be on the coach?

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Mary should be on the coach for .... hours .... minutes
[2]

(c) Mr and Mrs Williams are booked on the 15:20 flight from Gatwick North. They catch the 07:25 coach from Cardiff. How long will they have at the airport before their flight takes off?

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Mr and Mrs Williams will have .... hours .... minutes in the airport
[3]

(d) One of the coaches diverts to another town between Newport and Heathrow. Which coach is it and explain how you know.

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[2]

7. Divide 18 hours 45 minutes by 5.

Give your answer in hours and minutes. [2]

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8. The journey from Edinburgh to Dundee takes 2 hours 20 minutes by car. If the towns are 100km apart, calculate the average speed of this journey.
Give your answer to the nearest kilometre per hour. [3]

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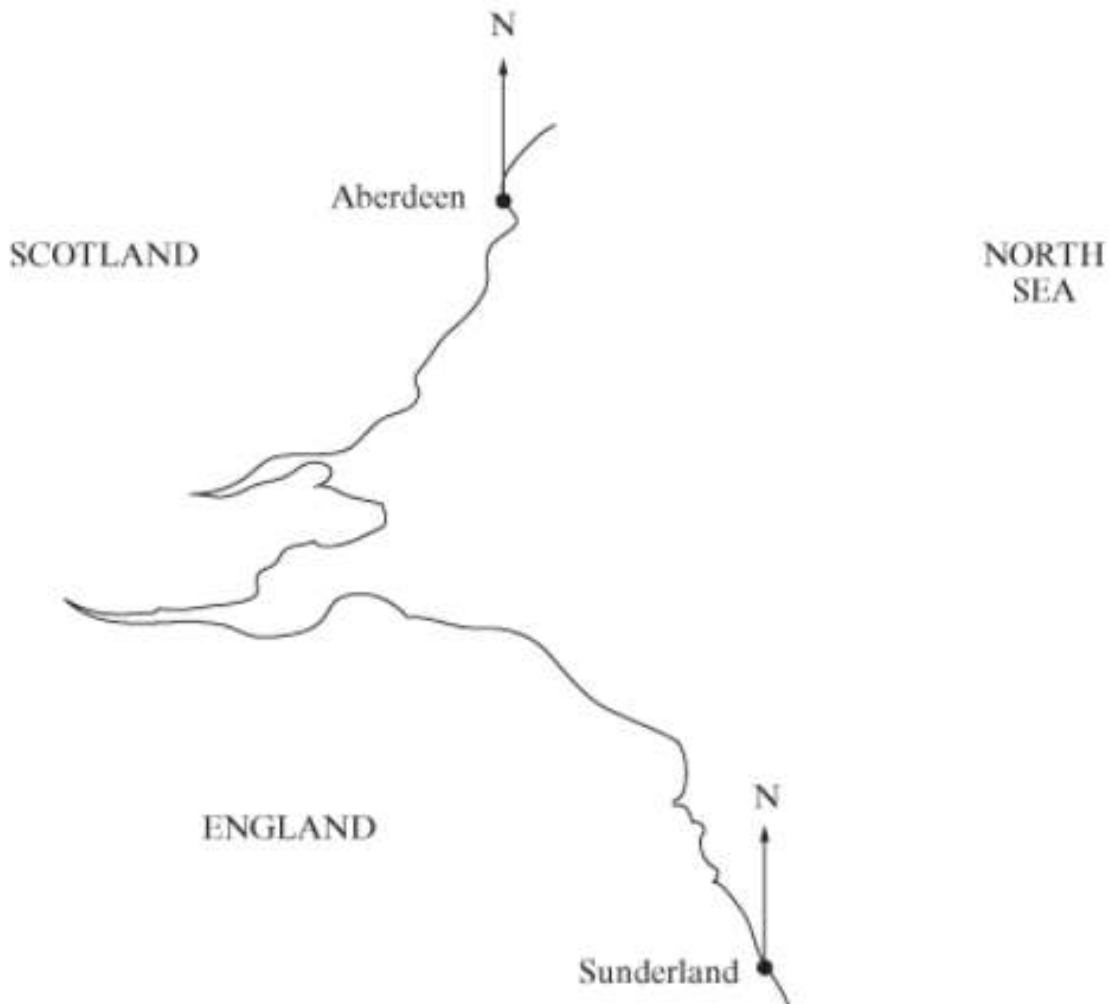
9.

An oil ship is sailing in the North Sea.
It is 150 km from Sunderland on a bearing of 065°.

Plot its position on the diagram below and give its bearing from Aberdeen.

Scale : 1 cm represents 25 km

N

Aberdeen ●

SCOTLAND

NORTH
SEA

N

ENGLAND

Sunderland ●

The bearing of the ship from Aberdeen is _____

[3]

10.

On the map below, 1 cm represents 5 km.

A ship is on a bearing of 027° from Fishguard and 330° from Aberaeron.

How far is the ship from Aberystwyth?
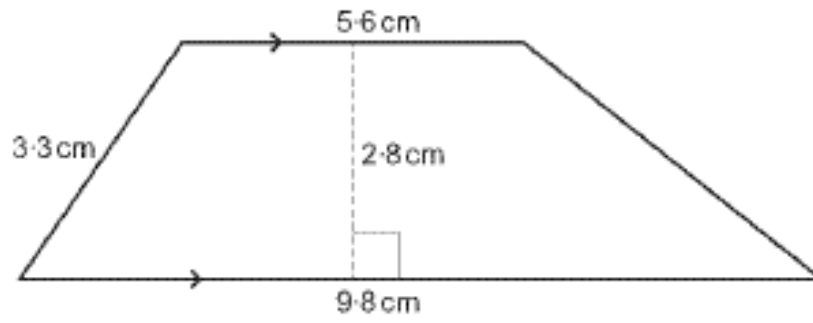You must show all the lines you need to draw on the map.   [4]

Barmouth

SEA

Aberystwyth

N

Aberaeron

N

Cardigan

LAND

Fishguard

11.

5·6 cm

3·3 cm

2·8 cm

9·8 cm

Diagram not drawn to scale

Calculate the area of the trapezium.
Give the units for your answer. [3]
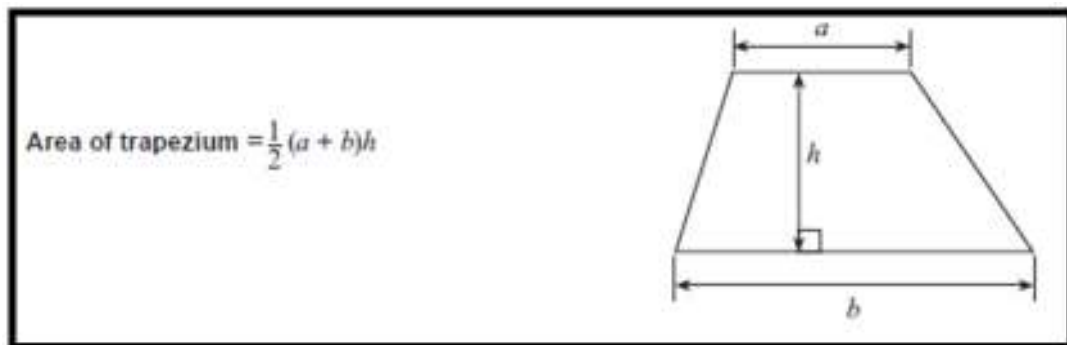
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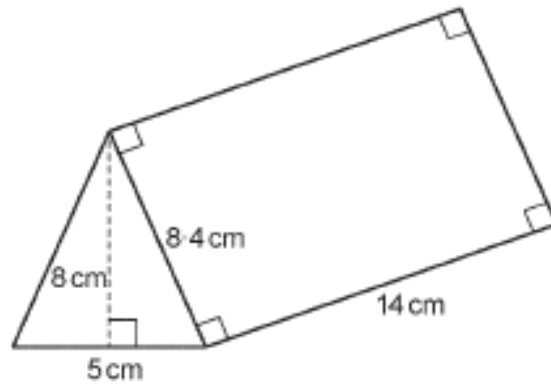*REMEMBER – YOU ARE GIVEN THIS FORMULA AT THE FRONT OF THE EXAM PAPER!*

Area of trapezium $= \frac{1}{2}(a + b)h$

12.   A company's logo is displayed on the outside of its factory wall.
The shape of the logo is made using a rectangle, a right-angled triangle and a semicircle, as shown in the diagram below.
Some of the lengths are shown on the diagram.

Diagram not drawn to scale

Calculate the total area of this logo. Give your answer correct to 1 decimal place.   [5]

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13.

Diagram not drawn to scale

Calculate the volume of the triangular prism shown.
State the units of your answer.

[3]

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_____

14. Calculate the volume of a cylinder radius 4·5 cm and height 10·3 cm.
State the units of your answer.

[3]
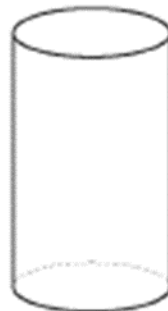
Diagram not drawn to scale

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15.

ABCD is a square.
Triangle *DEF* is equilateral.
Triangle *AFD* is isosceles with $AF = AD$.
EDC is a straight line.

Showing all your steps, calculate the size of $A\widehat{F}E$.
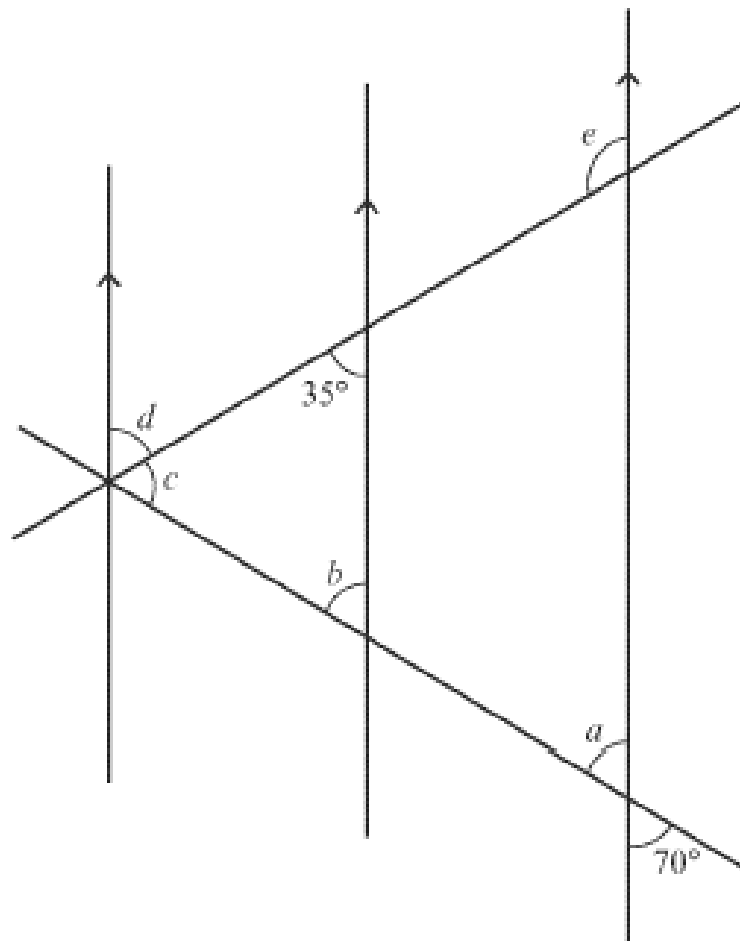

Diagram not drawn to scale

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[5]
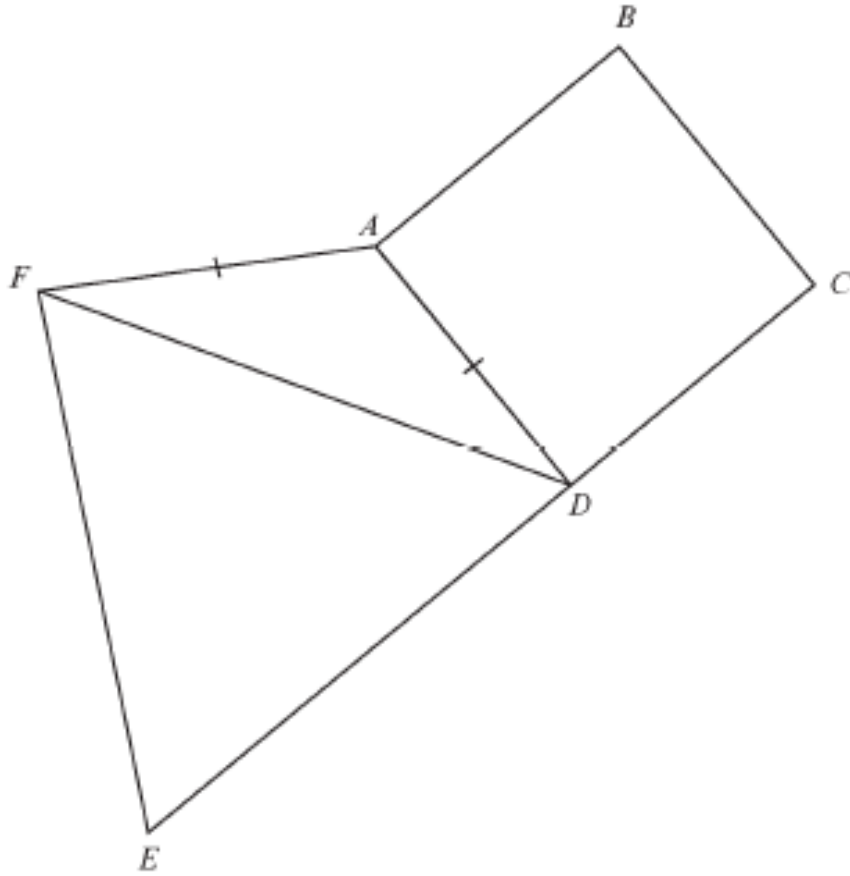
16.

Diagram not drawn to scale

Find the size of the angles marked *a*, *b*, *c*, *d* and *e*.

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....

$a =$ .... °

$b =$ .... °

$c =$ .... °

$d =$ .... °

$e =$ .... °

[5]

17. There are two regular polygons, X and Y.
The size of each **exterior** angle in regular polygon X, is 9°.
Each **interior** angle of regular polygon Y is 120°.

Complete the sentences below. [4]

Regular polygon X has .... sides.
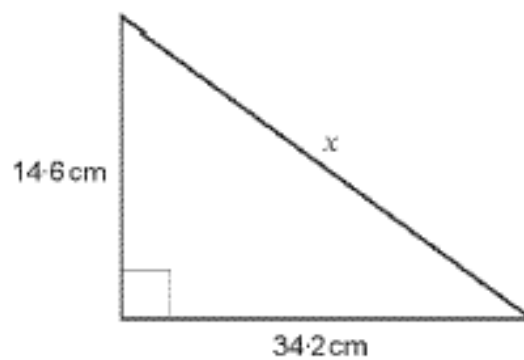
Regular polygon Y has .... sides.

18.

14·6 cm

x

34·2 cm

Diagram not drawn to scale

Calculate the length x. [3]

19. The diagram below shows a freehand sketch of a triangle *ABC* that is not drawn to scale.
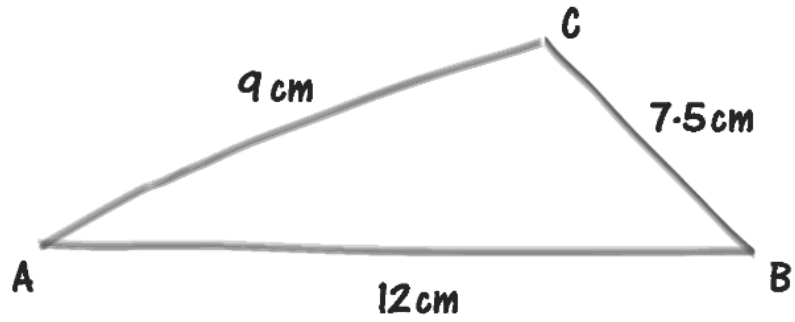
Use a ruler and a pair of compasses to draw an accurate diagram of triangle *ABC*.
Line *AB* is drawn accurately for you.
You must show all your construction arcs. [2]