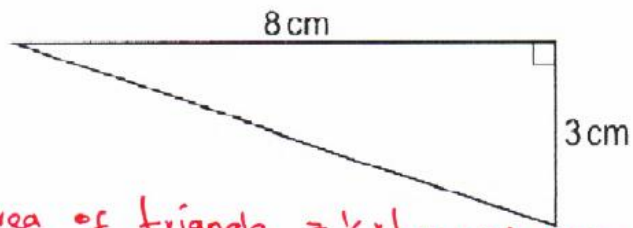


2D and 3D Shapes – Checkpoint Primary Math

1. No.3

Calculate the area of the right-angled triangle.

Not drawn
to scale

$$\text{Area of triangle} = \frac{1}{2} \times \text{base} \times \text{height}$$

$$= \frac{1}{2} \times 3 \times 8$$

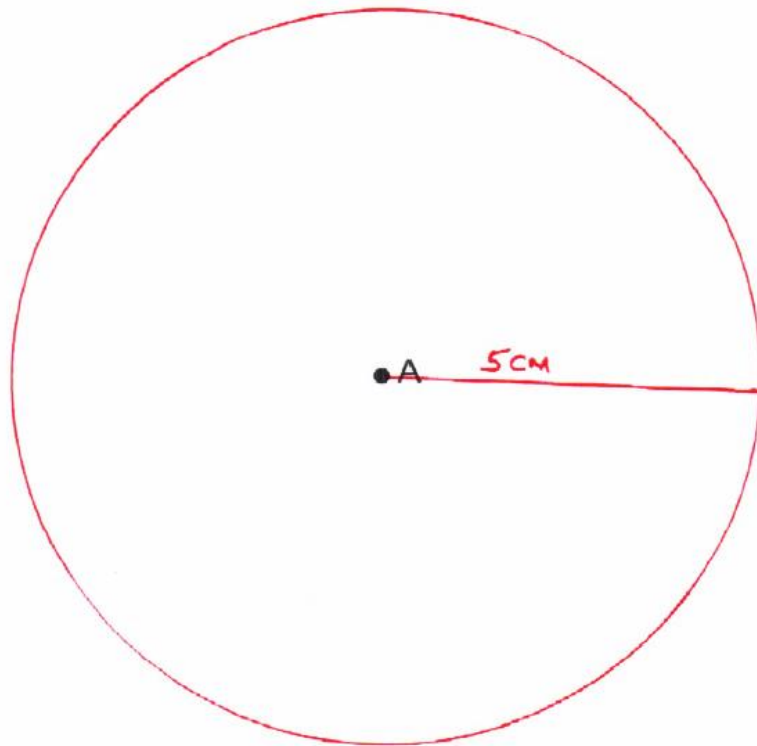
$$= \frac{24}{2}$$

$$= \underline{\underline{12 \text{ cm}^2}}$$

..... 12 cm^2 [1]

2. No.13

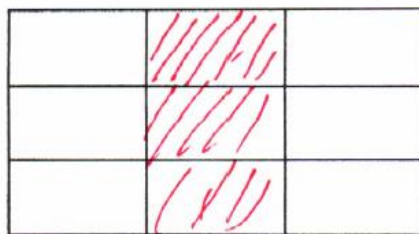
Draw accurately the set of points exactly 5 cm from point A.



[1]

3. No.14

Here is a diagram made of nine rectangles.

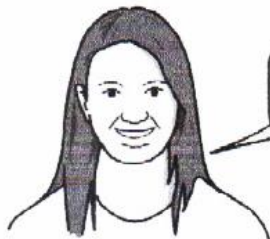


Shade **three** rectangles so that the shape has **exactly two** lines of symmetry. [1]



4. No.19

Jamila says,



The capacity of a jug could be greater than the volume of water in the jug.

Jamila is correct.

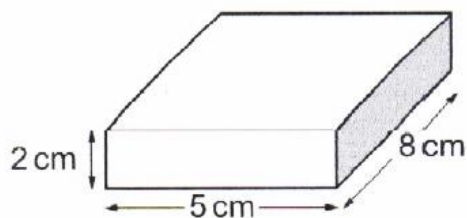
Explain how you know.

Use the words **capacity** and **volume** in your answer.

The capacity is the amount it will hold when full
but the volume is the amount that is in the jug. [1]

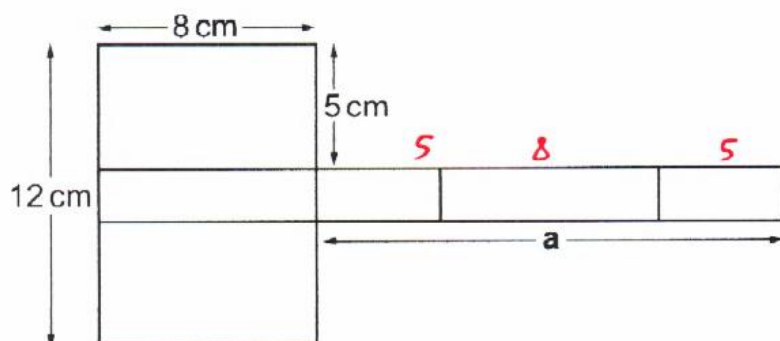
5. No.23

Here is a sketch of a cuboid.



Not drawn
to scale

Here is a net of the same cuboid.



Not drawn
to scale

(a) Calculate the length represented by **a**.

$$5 + 8 + 5 \\ = \underline{\underline{18 \text{ cm}}}$$

$$a = \underline{\underline{18}} \text{ cm [1]}$$

(b) Calculate the surface area of the cuboid.

Surface area

$$= (8 \times 5) \times 2 = 80 \text{ cm}^2$$

$$(8 \times 2 \times 2) = 32 \text{ cm}^2$$

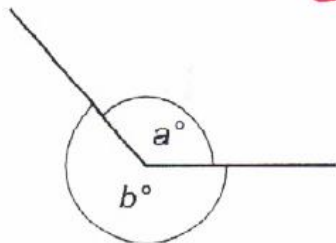
$$(5 \times 2 \times 2) = 20 \text{ cm}^2$$

$$+ \underline{\underline{132}}$$

$$\underline{\underline{132}} \text{ cm}^2 \text{ [2]}$$

6. No.29

Here is a diagram of two angles.



obtuse is angle greater than 90° .

Not drawn to scale

a is an obtuse angle.

The value of b is a multiple of 10

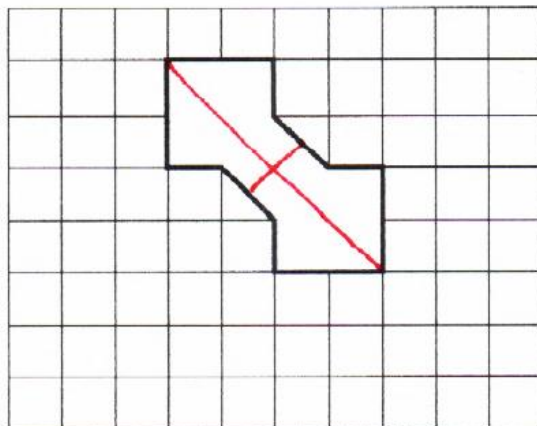
$$360^\circ - 100^\circ = \underline{\underline{260^\circ}}$$

Write the **largest** value of b .

260° [1]

7. No.10

Here is a shape drawn on a grid of squares.



(a) Write the order of rotational symmetry of the shape.

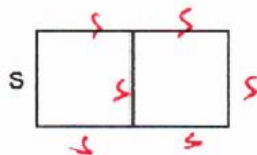
2 [1]

(b) Draw a line on the shape so that the order of rotational symmetry remains the same.

[1]

8. No.15

Oliver joins two identical square tiles to make a rectangle.
The side length of each square tile is represented by s .



Draw a ring around the expression which represents the perimeter of the rectangle.

$$s + s + s + s$$

$$(s + s) \times 4$$

$$s + s + s + s + s + s$$

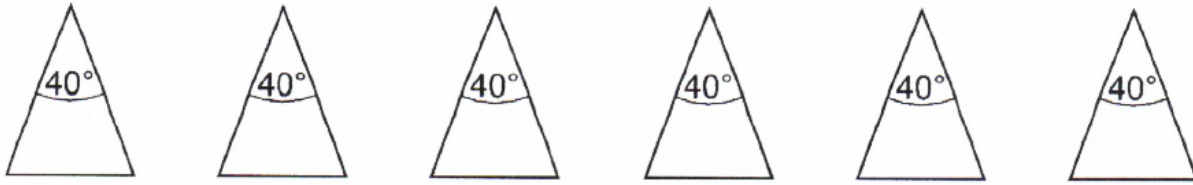
$$(s + s + s + s) \times 2$$

Perimeter = $s + s + s + s + s + s$
 $= \underline{6s}$

[1]

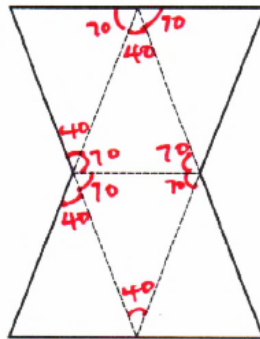
9. No.17

Here are six identical isosceles triangles.



Not drawn to scale

The six triangles are arranged to make this hexagon.



Not drawn to scale

Isosceles triangle
two angles are equal.
 $180 - 40 = \frac{140}{2} = \underline{\underline{70}}$

(a) Calculate the **smallest** angle in the hexagon.

$$\text{Smallest angle} = \underline{\underline{70^\circ}}$$

70 ° [1]

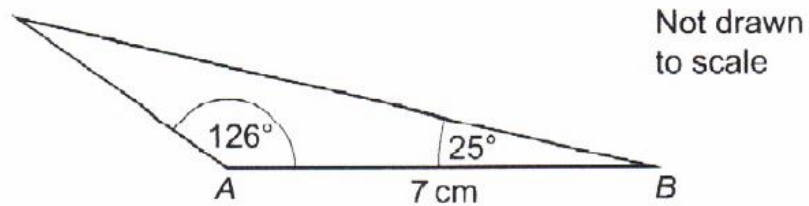
(b) Calculate the **largest** angle in the hexagon.

$$\begin{aligned} \text{Largest angle} &= 40 + 70 + 70 + 40 \\ &= \underline{\underline{220^\circ}} \end{aligned}$$

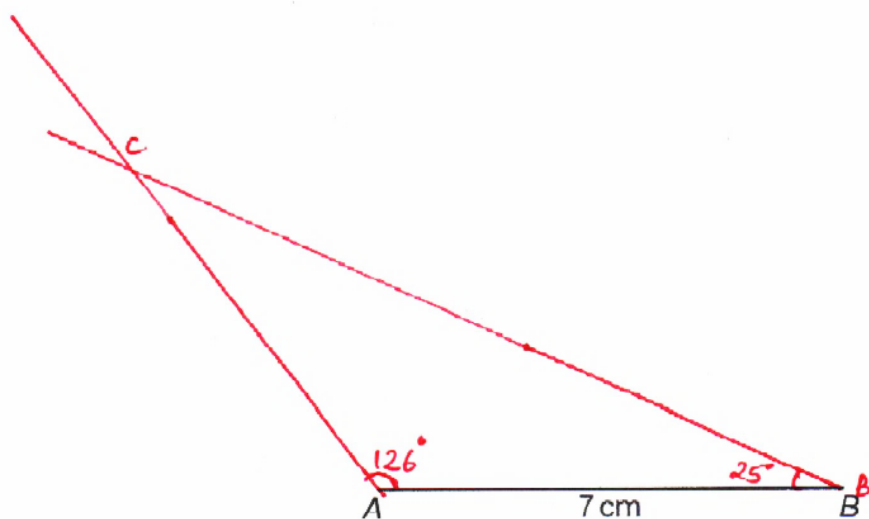
220 ° [1]

10. No.20

Here is a sketch of a triangle.



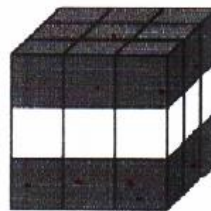
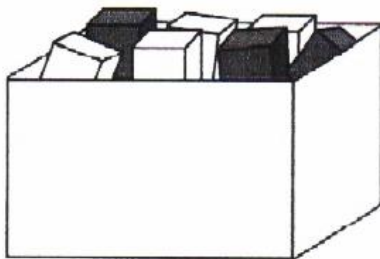
Draw the triangle accurately.
One line has been drawn for you.



[2]

11. No.21

Jamila has black unit cubes and white unit cubes.
She uses some of the unit cubes to make this larger solid cube.



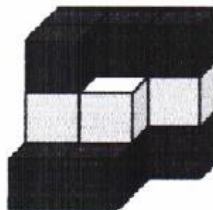
(a) Write the number of unit cubes she uses to make this larger cube.

$$3 \times 3 \times 3$$

$$9 \times 3 = \underline{\underline{27}}$$

..... 27 [1]

(b) Jamila removes some unit cubes to make this shape.



Write the number of black cubes and white cubes she **removes** from her larger cube to make this shape.

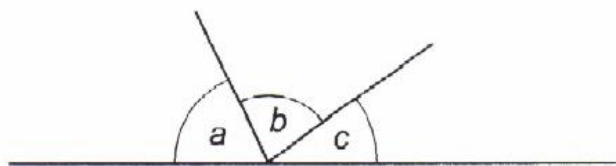
..... 7 black cubes

..... 4 white cubes

[1]

12. No.23

Angles a , b and c can be arranged to make a straight line.



Not drawn
to scale

Angle a is smaller than angle b .

Angle a is larger than angle c .

The total of the two smaller angles is equal to the size of the largest angle.

Write possible values for angles a , b and c .

$\angle c$ and $\angle a =$ acute angle, less than 90° .

$\angle b = 90^\circ$ (right angled)

$$a + 90 + c = 180$$

$$a + c = 180 - 90$$

$$a > c \quad a + c = 90$$

$$a = 60^\circ$$

$$c = \underline{\underline{30^\circ}}$$

$$a = \underline{\underline{60^\circ}}^\circ$$

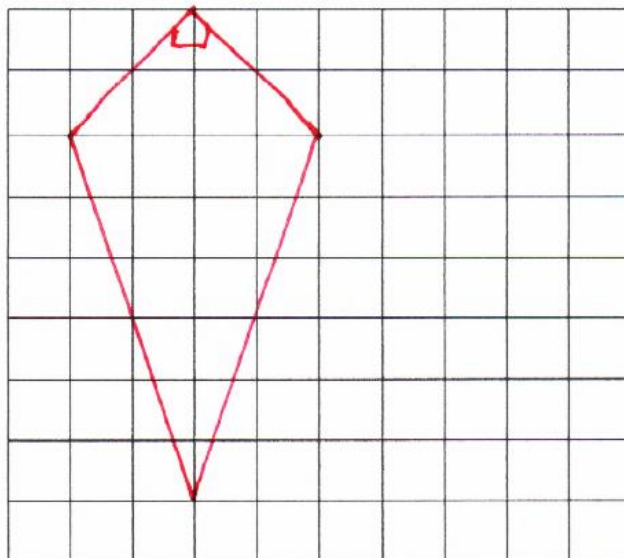
$$b = \underline{\underline{90}}^\circ$$

$$c = \underline{\underline{30^\circ}}^\circ$$

[2]

13. No.26

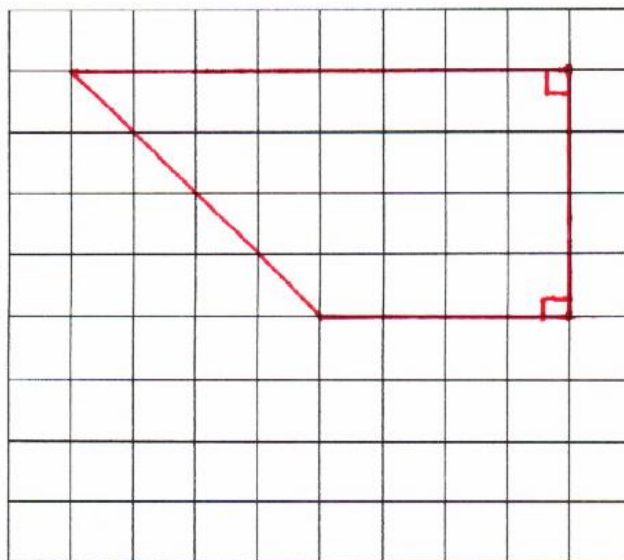
(a) Here is a grid of squares.



Draw a kite with **exactly** one right angle on the grid.
Use a ruler.

[1]

(b) Here is a grid of squares.



Draw a quadrilateral on the grid with

- **exactly** two right angles,
- **exactly** one pair of parallel sides.

Use a ruler.

[1]