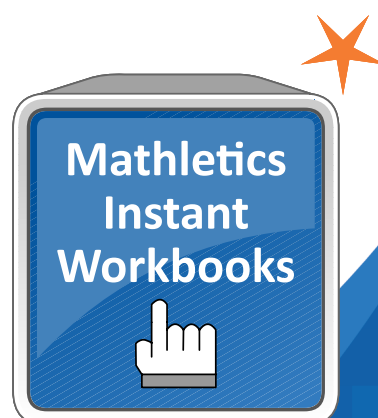
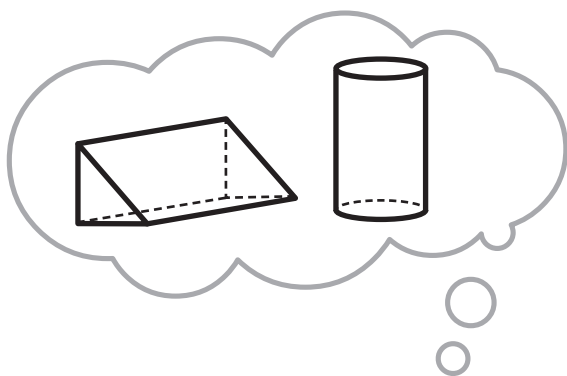


# MATHLETICS

Measurement, Area, Surface Area and Volume

Student Book - Series J-2



# Measurement, area, surface area and volume

## Student Book - Series J 2

### Contents

<b>Topics</b>	<b>Date completed</b>
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Topic 5 - Volume of a prism	__/__/__
Topic 6 - Volume of a cylinder	__/__/__

### Practice Tests

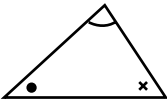
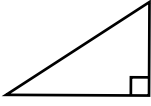
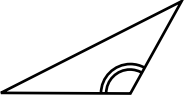
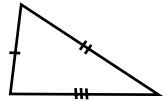
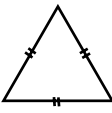

Topic 1 - Topic test A	__/__/__
Topic 2 - Topic test B	__/__/__

Author of The Topics and Topic Tests: AS Kalra

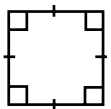
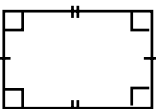
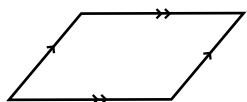
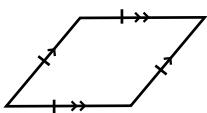
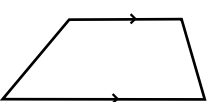
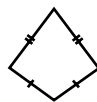
# Measurement, area, surface area and volume

## Topic 1 - Plane shapes


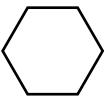
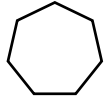
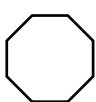
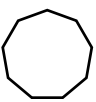
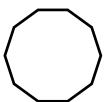
QUESTION 1 Name the following triangles.

a		b		c	
<hr/>		<hr/>		<hr/>	
d		e		f	
<hr/>		<hr/>		<hr/>	

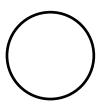
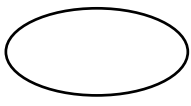

QUESTION 2 Name the following quadrilaterals.

a		b		c	
<hr/>		<hr/>		<hr/>	
d		e		f	
<hr/>		<hr/>		<hr/>	

QUESTION 3 Name the following polygons.

a		b		c	
<hr/>		<hr/>		<hr/>	
d		e		f	
<hr/>		<hr/>		<hr/>	

QUESTION 4 Name the following shapes.

a		b		c	
<hr/>		<hr/>		<hr/>	

# Measurement, area, surface area and volume

## Topic 2 - Angle sum of plane shapes

QUESTION 1 Complete the following table.

	Name of the shape	Number of sides ( $n$ )	Number of triangles formed from one vertex ( $n - 2$ )	Angle sum of the shape $(n - 2)180^\circ$
a	Triangle	3	1	$(3 - 2)180^\circ = 180^\circ$
b	Quadrilateral			
c	Pentagon			
d	Hexagon			
e	Heptagon			
f	Octagon			
g	Nonagon			
h	Decagon			
i	Undecagon			
j	Dodecagon			

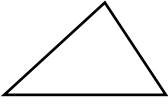
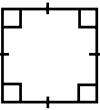
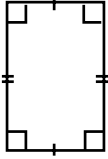
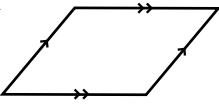
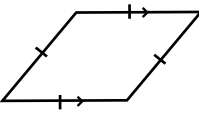
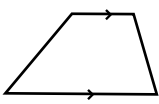
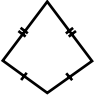
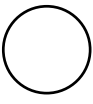

QUESTION 2 Complete the following sentences.

- a The angle sum of a triangle is equal to \_\_\_\_\_
- b The angle sum of a quadrilateral is equal to \_\_\_\_\_
- c The angle sum of a pentagon is equal to \_\_\_\_\_
- d The angle sum of a hexagon is equal to \_\_\_\_\_
- e The angle sum of a heptagon is equal to \_\_\_\_\_
- f The angle sum of an octagon is equal to \_\_\_\_\_
- g The angle sum of a nonagon is equal to \_\_\_\_\_
- h The angle sum of a decagon is equal to \_\_\_\_\_
- i The angle sum of an undecagon is equal to \_\_\_\_\_
- j The angle sum of a dodecagon is equal to \_\_\_\_\_
- k The angle sum of a polygon with  $n$  sides is equal to \_\_\_\_\_
- l The angle sum of the exterior angles of a polygon is always equal to \_\_\_\_\_

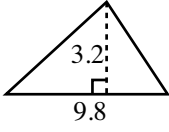
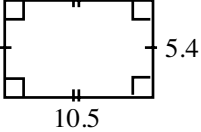
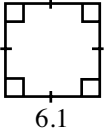
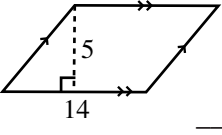
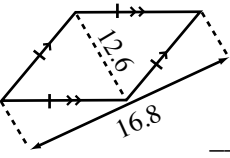
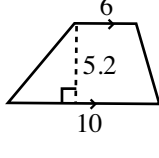
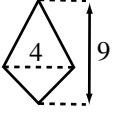
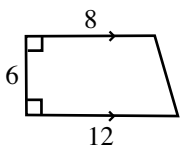
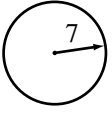
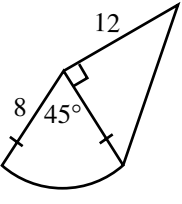
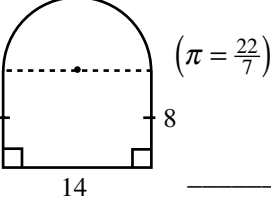
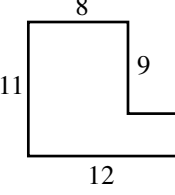
# Measurement, area, surface area and volume

## Topic 3 - Areas of plane shapes

**QUESTION 1** Write the area formula next to the shapes given below.

a		_____
b		_____
c		_____
d		_____
e		_____
f		_____
g		_____
h		_____
i		_____

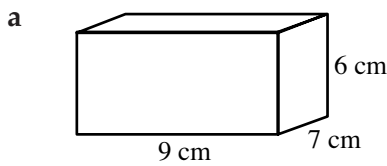
**QUESTION 2** Find the area of the following shapes. All measurements are in centimetres.

a		_____
b		_____
c		_____
d		_____
e		_____
f		_____
g		_____
h		_____
i		_____
j		_____
k		_____
l		_____

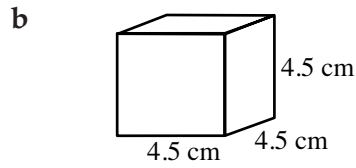
# Measurement, area, surface area and volume

## Topic 4 - Surface area of a solid

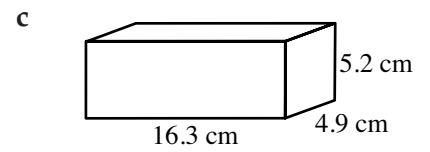
**QUESTION 1** Find the surface area of the following rectangular prisms.



\_\_\_\_\_

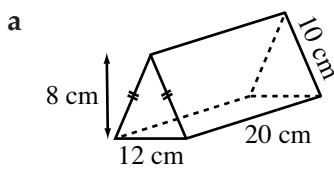


\_\_\_\_\_

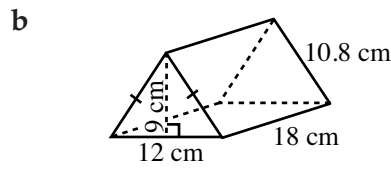


\_\_\_\_\_

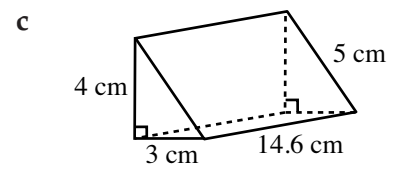
**QUESTION 2** Find the surface area of the following triangular prisms.



\_\_\_\_\_

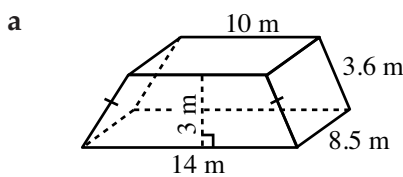


\_\_\_\_\_

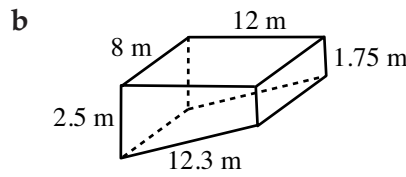


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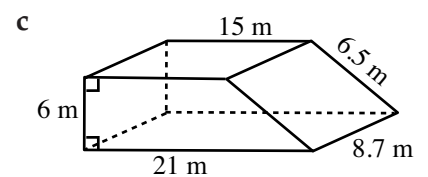
**QUESTION 3** Find the surface area of the following trapezoidal prisms.



\_\_\_\_\_

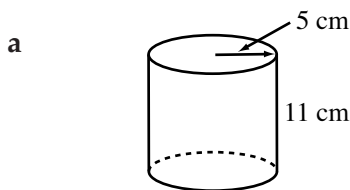


\_\_\_\_\_

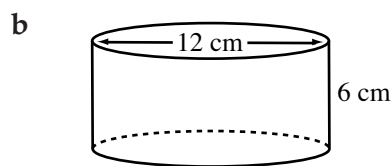


\_\_\_\_\_

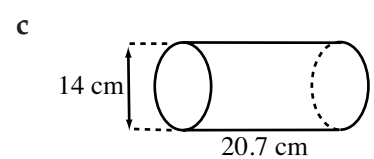
**QUESTION 4** Find the surface area of the following solid cylinders.



\_\_\_\_\_



\_\_\_\_\_

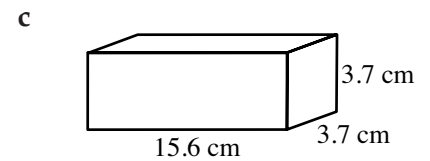
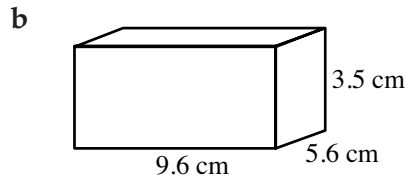
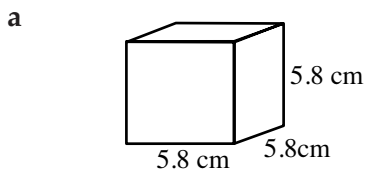


\_\_\_\_\_

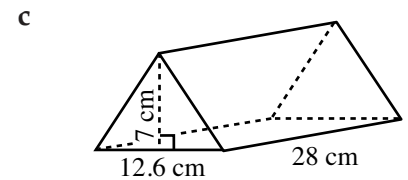
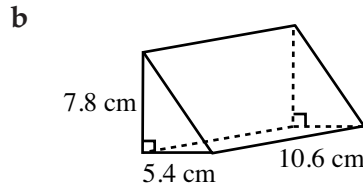
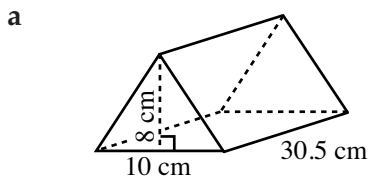
# Measurement, area, surface area and volume

## Topic 5 - Volume of a prism

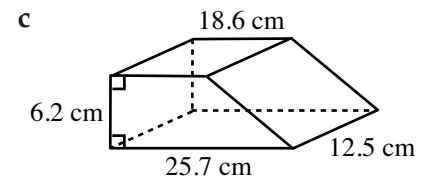
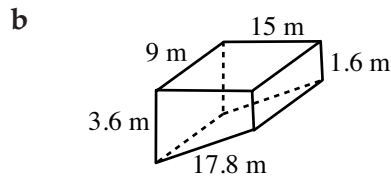
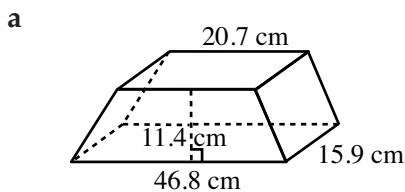
**QUESTION 1** Find the volume of the following rectangular prisms (give answers correct to one decimal place).



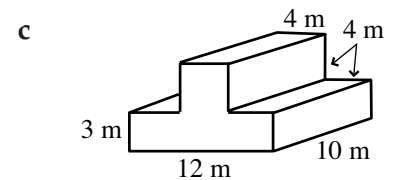
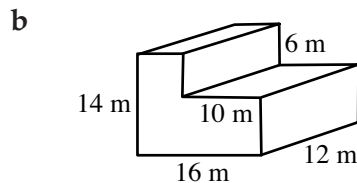
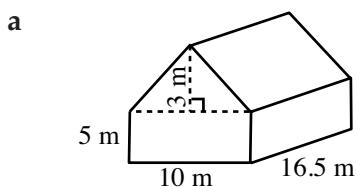
**QUESTION 2** Find the volume of the following triangular prisms (give answers correct to four significant figures).



**QUESTION 3** Find the volume of the following trapezoidal prisms (give answers correct to two decimal places).



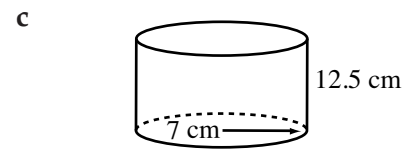
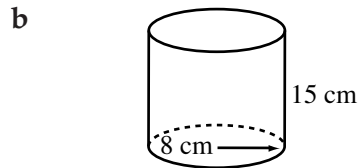
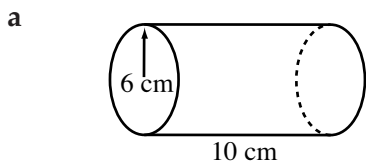
**QUESTION 4** Find the volume of the following solids.



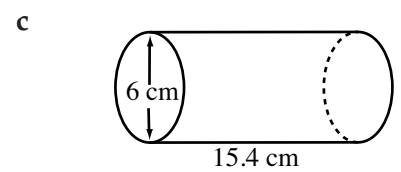
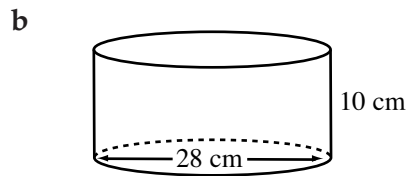
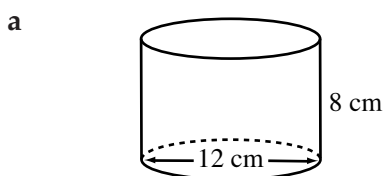
# Measurement, area, surface area and volume

## Topic 6 - Volume of a cylinder

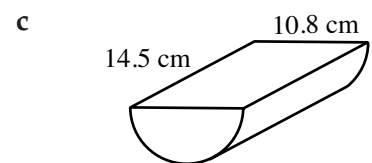
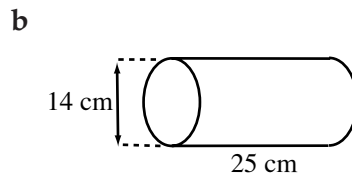
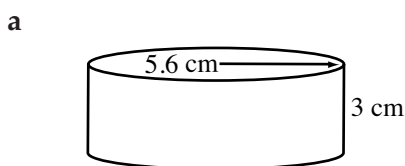
**QUESTION 1** Find the volume of the following cylinders (correct to one decimal place).



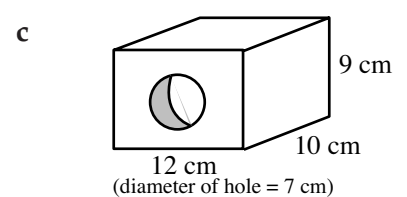
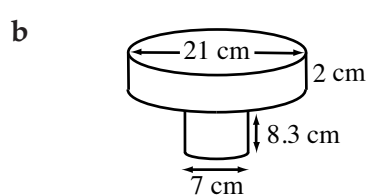
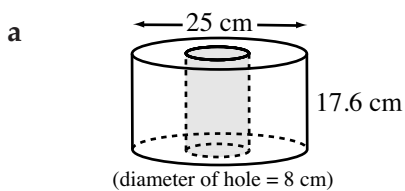
**QUESTION 2** Find the volume of the following cylinders (correct to three significant figures).



**QUESTION 3** Find the volume of the following (correct to two decimal places).



**QUESTION 4** Find the volume of the following solids (correct to one decimal place).





# Measurement, area, surface area and volume

## Topic Test

### PART A

**Instructions** This part consists of 10 multiple-choice questions  
Each question is worth 1 mark  
Attempt ALL questions  
Calculators are NOT to be used  
Fill in only ONE CIRCLE for each question

**Time allowed: 15 minutes**

**Total marks = 10**

	Marks
<b>1</b> Find the area of a square with side length 12 cm. (A) 48 cm <sup>2</sup> (B) 288 cm <sup>2</sup> (C) 144 cm <sup>2</sup> (D) None of these	1
<b>2</b> Calculate the volume of a cube with side length 5 cm. (A) 30 cm <sup>3</sup> (B) 125 cm <sup>3</sup> (C) 150 cm <sup>3</sup> (D) None of these	1
<b>3</b> A rectangular prism has sides of length 9 cm, 11 cm and 12 cm. Find its volume. (A) 32 cm <sup>3</sup> (B) 339 cm <sup>3</sup> (C) 594 cm <sup>3</sup> (D) 1188 cm <sup>3</sup>	1
<b>4</b> A cube has a volume of 4913 cm <sup>3</sup> . Find the length of each side of the cube. (A) 70 cm      (B) 8.4 cm      (C) 181 cm      (D) 17 cm	1
<b>5</b> Find the perimeter of a square of side 4.2 cm. (A) 17.64 cm      (B) 74.1 cm      (C) 16.8 cm      (D) None of these	1
<b>6</b> If the perimeter of a square is 36 cm, then the area of the square is (A) 6 cm <sup>2</sup> (B) 9 cm <sup>2</sup> (C) 36 cm <sup>2</sup> (D) 81 cm <sup>2</sup>	1
<b>7</b> How many square centimetres are there in a square metre? (A) 100      (B) 1000      (C) 10 000      (D) 100 000	1
<b>8</b> The radius of the Earth is approximately 6400 km. What is the circumference of the Earth at the equator? (A) 40 212 km      (B) 1.29 10 <sup>8</sup> km      (C) 20 106 km      (D) 38 340 km	1
<b>9</b> What is the area of a circle of radius 3.2 m? Answer to the nearest square metre. (A) 101 m <sup>2</sup> (B) 32 m <sup>2</sup> (C) 129 m <sup>2</sup> (D) 8 m <sup>2</sup>	1
<b>10</b> The volume of a rectangular prism is 216 cm <sup>3</sup> . Find the total surface area of a cube having the same volume. (A) 64 cm <sup>2</sup> (B) 216 cm <sup>2</sup> (C) 144 cm <sup>2</sup> (D) 196 cm <sup>2</sup>	1

**Total marks achieved for PART A**

10

# Measurement, area, surface area and volume

## Topic Test

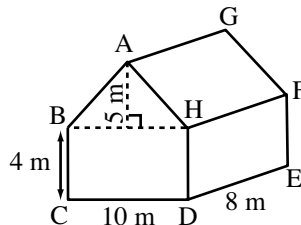
## PART B

**Instructions** This part consists of 15 questions  
 Each question is worth 1 mark  
 Attempt ALL questions  
 Calculators may be used

**Time allowed: 20 minutes**

**Total marks = 15**

Questions	Answers only	Marks
<b>1</b> State the formula for the area of a circle.	_____	1
<b>2</b> Convert $1.68 \text{ m}^2$ to $\text{cm}^2$ .	_____	1
<b>3</b> What is the side length of a square that has an area of $160\,000 \text{ m}^2$ ?	_____	1
<b>4</b> How many square metres in 2 hectares?	_____	1
<b>5</b> Calculate the surface area of a cube of side 2.5 m.	_____	1
<b>6</b> Calculate the volume of a rectangular prism 3.5 m long, 3.4 m wide and 2.8 m high.	_____	1
<b>7</b> Calculate the circumference of a circle with radius equal to 5 cm.	_____	1
For the solid given, calculate:		
<b>8</b> the area of rectangle BCDH.	_____	1
<b>9</b> the area of triangle ABH.	_____	1
<b>10</b> the area of AHFG.	_____	1
<b>11</b> the total surface area.	_____	1
<b>12</b> the volume.	_____	1
<b>13</b> A cube has a volume of $3375 \text{ cm}^3$ . Find the length of each side of the cube.	_____	1
<b>14</b> Find the perimeter of a square of side 5.6 cm.	_____	1
<b>15</b> The volume of a cube is $512 \text{ cm}^3$ . Find its surface area.	_____	1



**Total marks achieved for PART B**

15
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