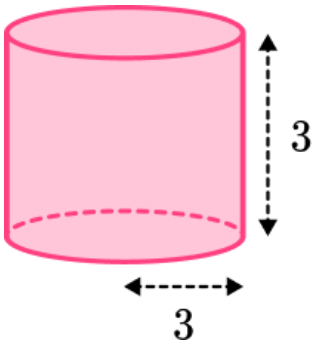
Surface Area of Cylinders - Worksheet

Skill

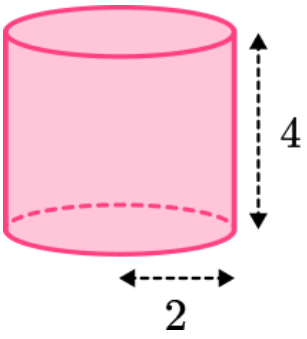
Group A - Curved surface area of a cylinder

Work out the curved surface areas of the cylinders. All dimensions are in cm. Diagrams are NOT to scale. Give your answer correct to 2 d.p:

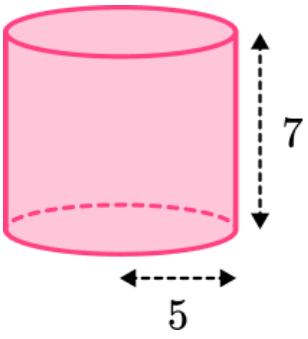
1)



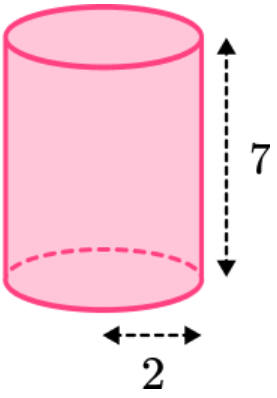
2)



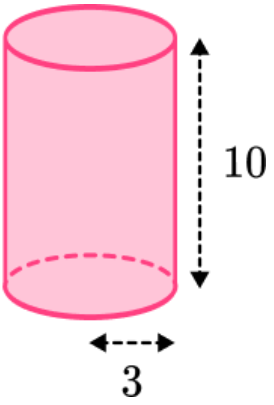
3)



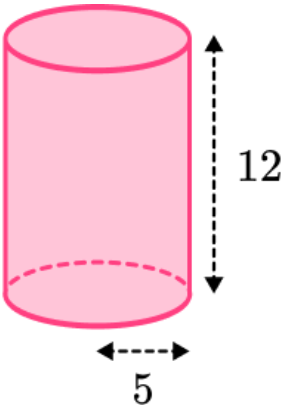
4)



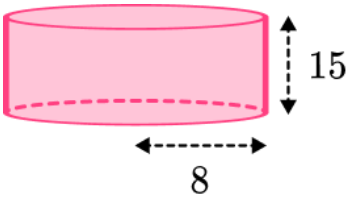
5)



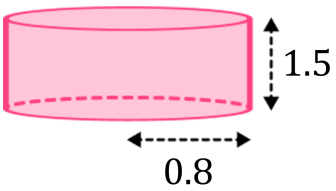
6)



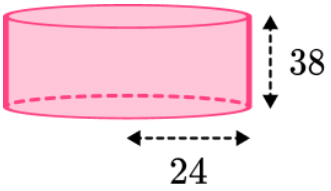
7)



8)



9)

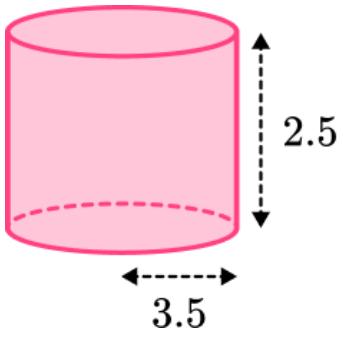


Surface Area of Cylinders - Worksheet

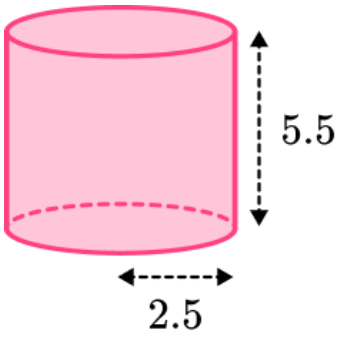
Group B - Surface area of a cylinder with decimals

Work out the surface area of the cylinders. All dimensions are in cm. Diagrams are NOT to scale. Give your answer correct to 2 d.p:

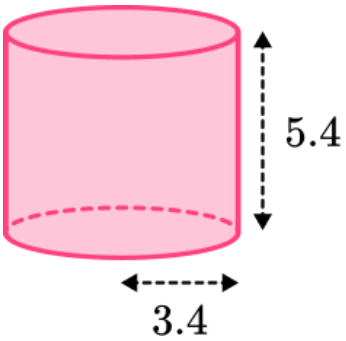
1)



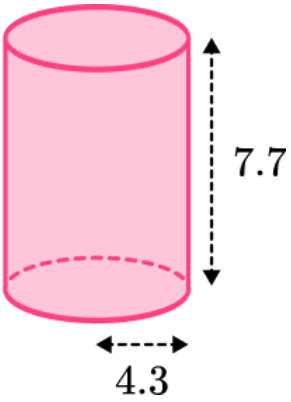
2)



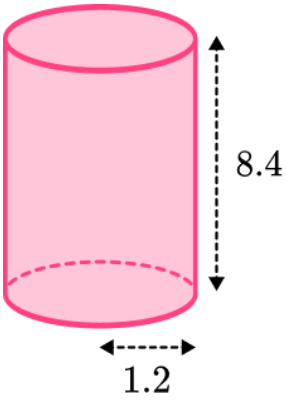
3)



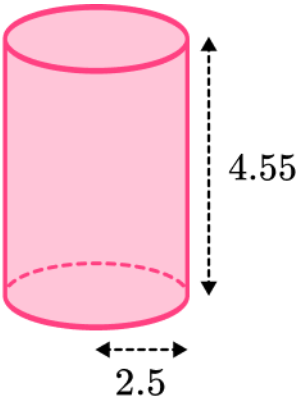
4)



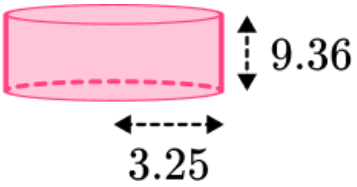
5)



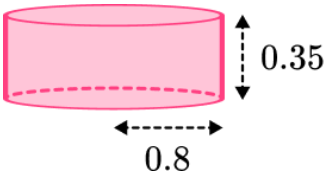
6)



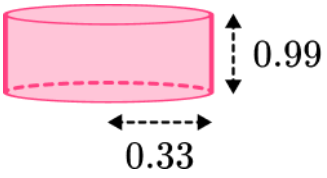
7)



8)



9)



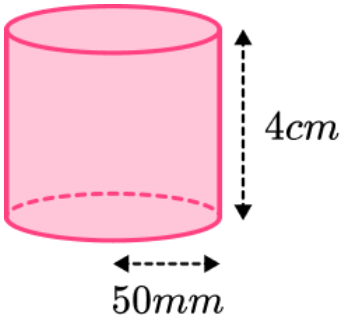
Surface Area of Cylinders - Worksheet

Group C - Surface area of a cylinder with conversions

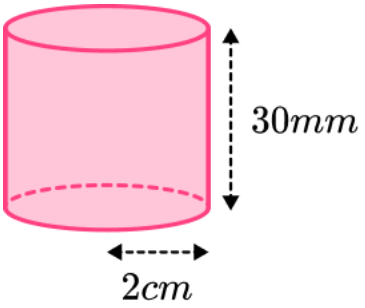
Work out the surface area of the cylinders. Diagrams are NOT to scale.

Give your answer correct to 2 d.p:

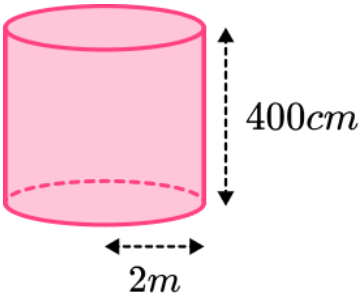
1)



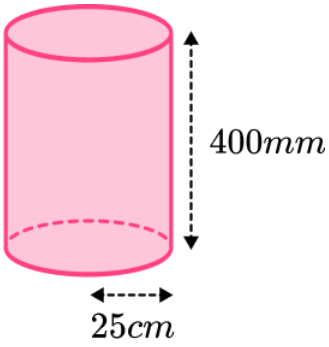
2)



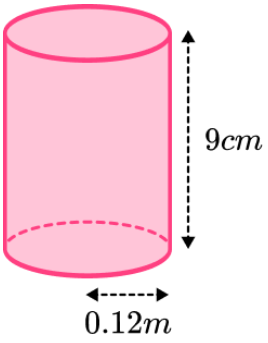
3)



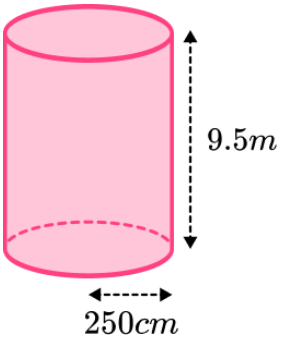
4)



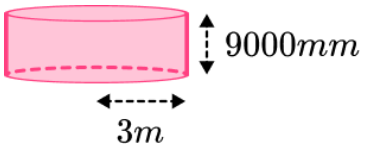
5)



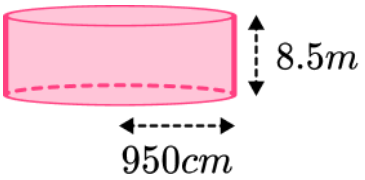
6)



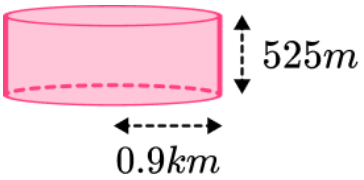
7)



8)



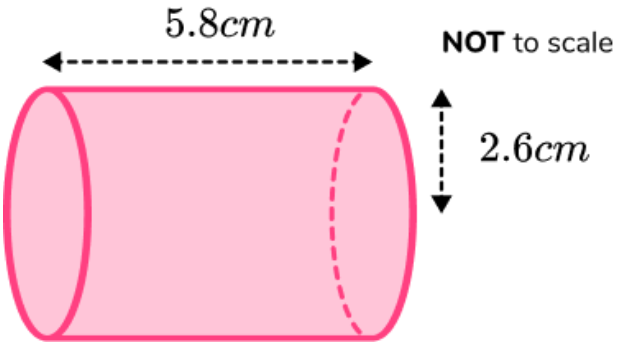
9)



Surface Area of Cylinders - Worksheet

Applied

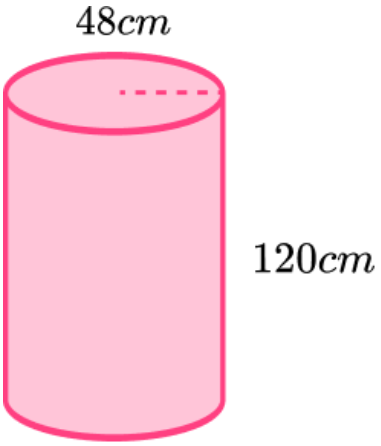
1) **(a)** Here is a cylinder.



Work out its surface area. Leave your answer in terms of π.

(b) Write the surface area for the cylinder above to 3 significant figures.

2) **(a)** Cynthia wants to paint the 5 columns in her backyard. All columns are identical and she only needs to paint the curved edge and the top of each one since the bottom touches the grass. The column is shown below.

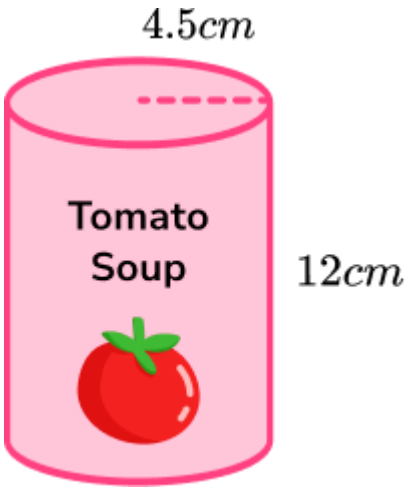


If a can of paint covers a surface area of $3m^2$, how many cans of paint will be needed to paint all the columns?

(b) If each can of paint costs £12. 50, how much will it cost to paint all 5 columns?

Surface Area of Cylinders - Worksheet

3) **(a)** A can of tomato soup has a paper label wrapped around the outside.

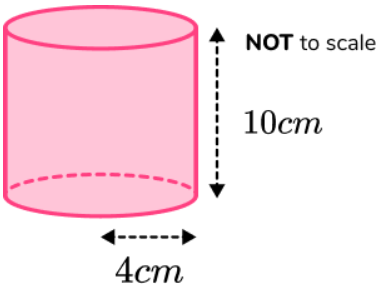


The can has a height of $12cm$ and a radius of $4.5cm$. The label covers the entire height of the can. Calculate the area of the label.

(b) Express your answer in terms of m^2.

Surface Area of Cylinders - Exam Questions

1) Here is a cylinder.



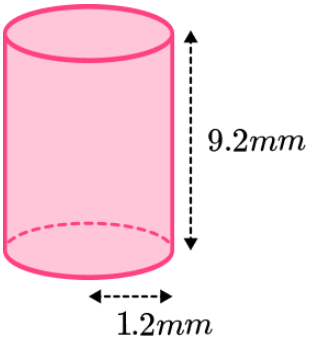
Calculate the surface area of the cylinder.
Leave your answer in terms of π.

.....cm^2

(3 marks)

---

2) Here is a cylinder.



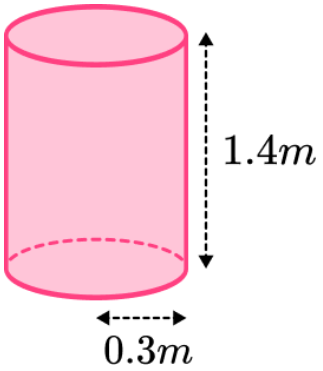
Calculate the total surface area of the cylinder.
Give your answer to 3 significant figures

.....mm^2

(3 marks)

Surface Area of Cylinders - Exam Questions

3) Penny has to cover 9 jars completely with paint.
Each jar is the shape of a cylinder with no top and a bottom.
The jar has a radius of $0.3m$ and a height of $1.4m$.



Penny has 10 cans of paint.

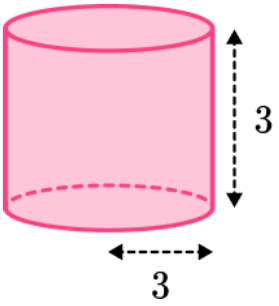
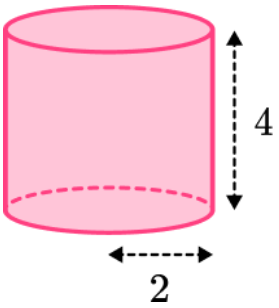
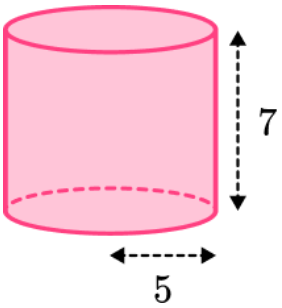
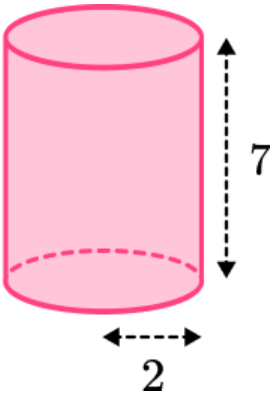
Each can of paint covers $4m^2$.

Does Penny have enough paint to cover the jars?
You must show how you get your answer.

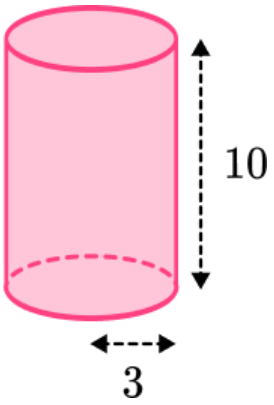
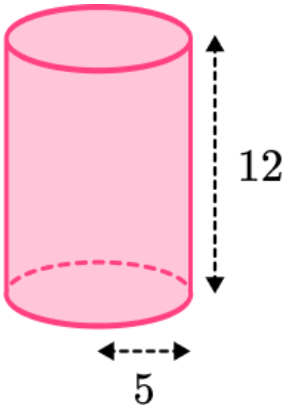
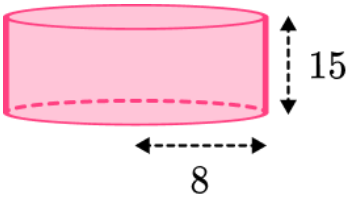
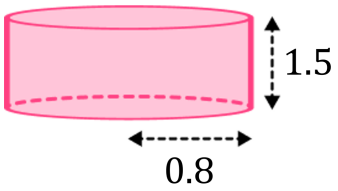
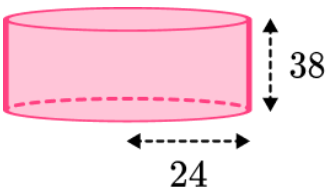
.....

(5 marks)

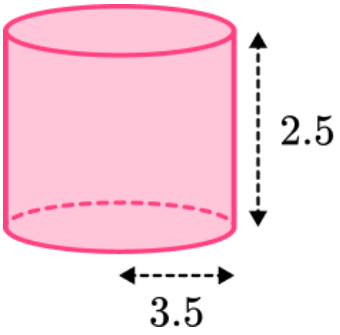
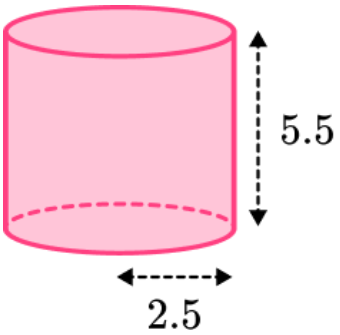
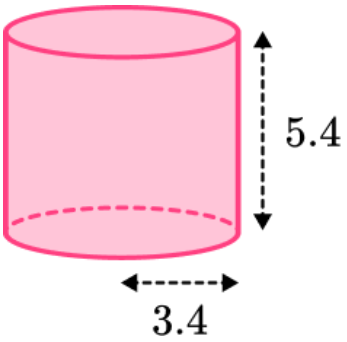
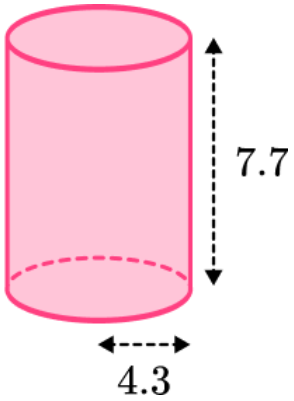
Surface Area of Cylinders - Answers

	Question	Answer
	Skill Questions	
Group A	Work out the curved surface areas of the cylinders. All dimensions are in cm. Diagrams are NOT to scale. Give your answer correct to 2d.p:	
	1) 	**1)** $56.55cm^2$
	2) 	**2)** $50.27cm^2$
	3) 	**3)** $219.91cm^2$
	4) 	**4)** $87.96cm^2$

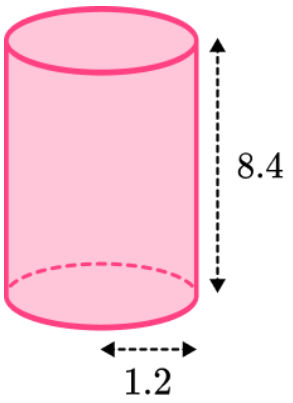
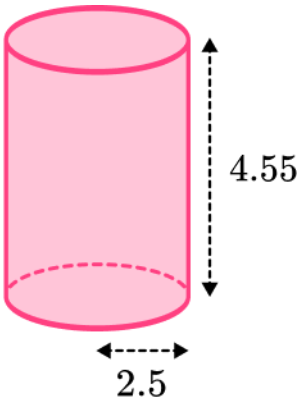
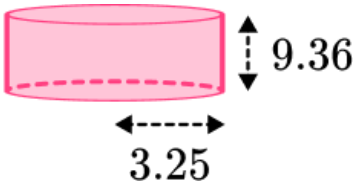
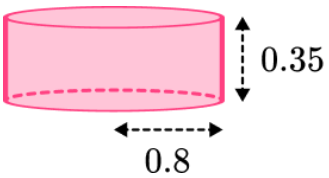
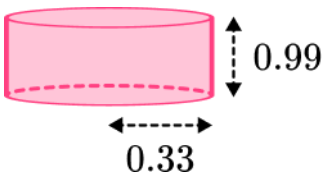
Surface Area of Cylinders - Answers

Group A contd	**5)** 	**5)** $188.50cm^2$
	6) 	**6)** $376.99cm^2$
	7) 	**7)** $753.98cm^2$
	8) 	**8)** $7.54cm^2$
	9) 	**9)** $5730.27cm^2$

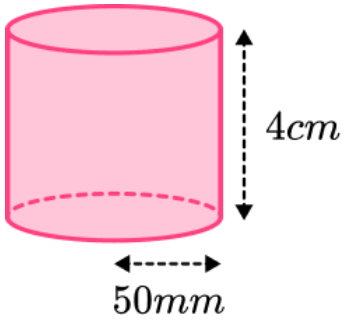
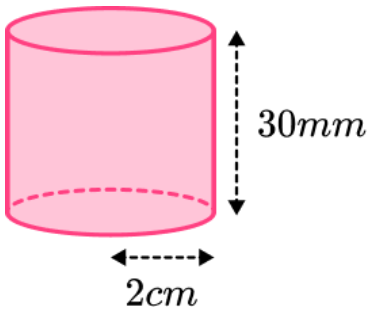
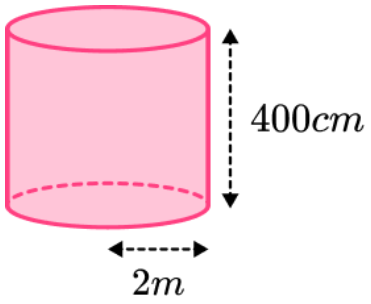
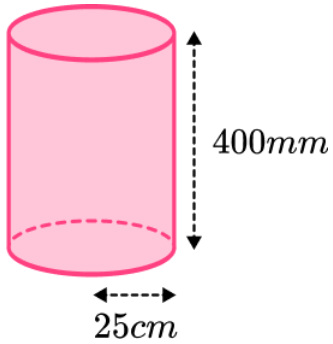
Surface Area of Cylinders - Answers

Group B	Work out the surface area of the cylinders. All dimensions are in cm. Diagrams are NOT to scale. Give your answer correct to 2 d.p:	
	1) 	**1)** $131.95cm^2$
	2) 	**2)** $125.66cm^2$
	3) 	**3)** $187.99cm^2$
	4) 	**4)** $324.21cm^2$

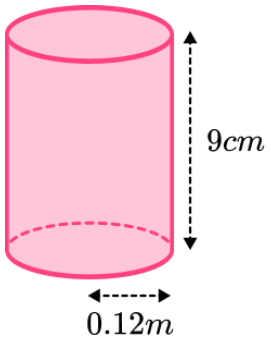
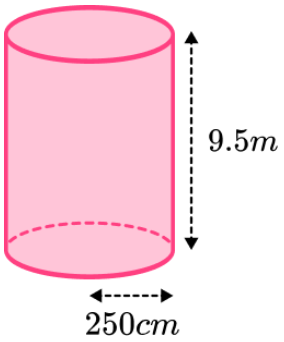
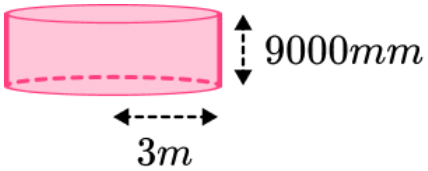
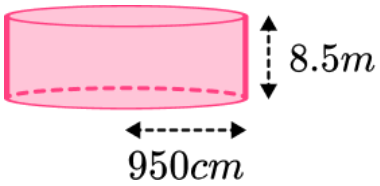
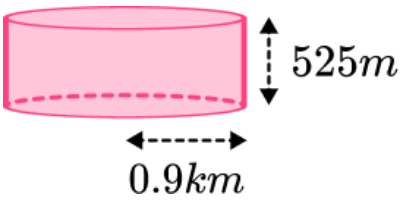
Surface Area of Cylinders - Answers

Group B contd	**5)** 	**5)** $72.38cm^2$
	6) 	**6)** $110.74cm^2$
	7) 	**7)** $257.50cm^2$
	8) 	**8)** $5.78cm^2$
	9) 	**9)** $2.74cm^2$

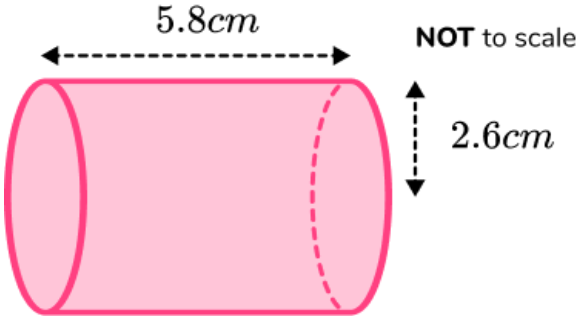
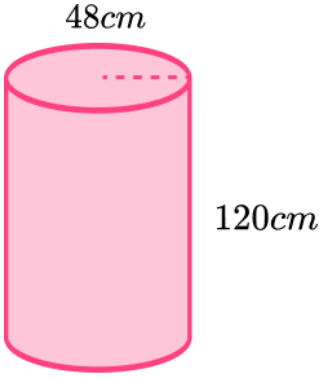
Surface Area of Cylinders - Answers

Group C	Work out the surface area of the cylinders. Diagrams are NOT to scale. Give your answer correct to 2.d.p: **1)**  **2)**  **3)**  **4)**  	**1)** $282.74cm^2$ or $28274.33mm^2$ **2)** $62.83cm^2$ or $6283.19mm^2$ **3)** $75.40m^2$ or $753982.24cm^2$ **4)** $10210.18cm^2$ or $1021017.61mm^2$

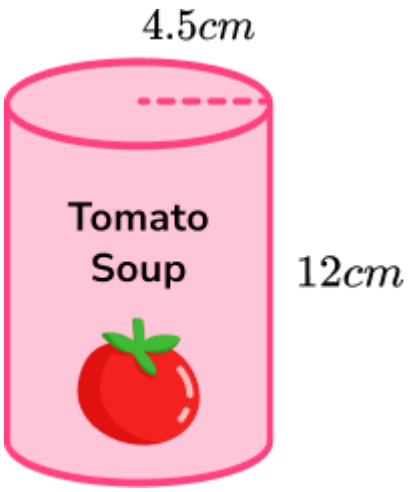
Surface Area of Cylinders - Answers

Group C contd	**5)** 	**5)** $1583.36cm^2$ or $0.16m^2$
	6) 	**6)** $188.50m^2$ or $1884955.59cm^2$
	7) 	**7)** $226.19m^2$ or $2261946.71cm^2$
	8) 	**8)** $1074.42m^2$ or $10744246.88cm^2$
	9) 	**9)** $8.06km^2$ or $8058185.16m^2$

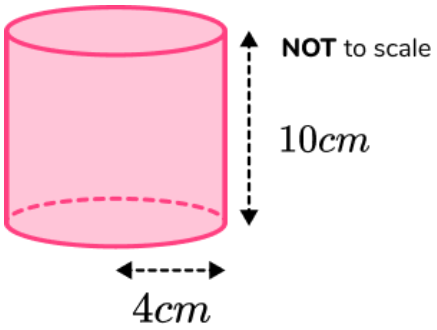
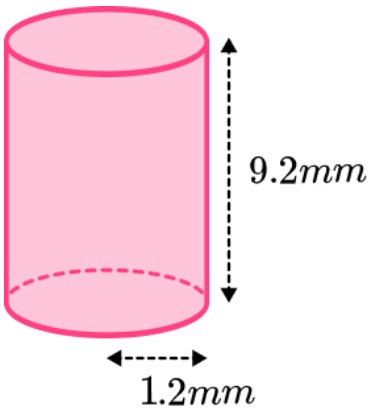
Surface Area of Cylinders - Answers

	Question	Answer
	Applied Questions	
1)	**a)** Here is a cylinder.  Work out its surface area. Leave your answer in terms of π. **b)** Write the surface area for the cylinder above to 3 significant figures.	**a)** $43.68\pi cm^2$ **b)** $137cm^2$
2)	**a)** Cynthia wants to paint the 5 columns in her backyard. All columns are identical and she only needs to paint the curved edge and the top of each one since the bottom touches the grass. The column is shown below.  If a can of paint covers a surface area of $3m^2$, how many cans of paint will be needed to paint all the columns? **b)** If each can of paint costs £12.50, how much will it cost to paint all 5 columns?	**a)** 8 cans of paint **b)** £100

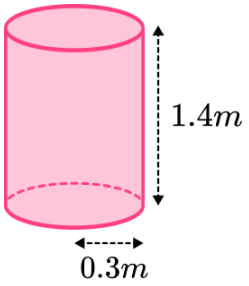
Surface Area of Cylinders - Answers

3)	**a)** A can of tomato soup has a paper label wrapped around the outside.  The can has a height of $12cm$ and a radius of 4.5cm. The label covers the entire height of the can. Calculate the area of the label. **b)** Express your answer in terms of m^2.	**a)** $339.29cm^2$ **b)** $0.033929m^2$

Surface Area of Cylinders - Mark Scheme

	Question	Answer	
	Exam Questions		
1)	Here is a cylinder. Calculate the surface area of the cylinder. Leave your answer in terms of π.  	$SA = 2\pi r^2 + 2\pi rh$ $SA = 2\pi(4)^2 + 2\pi(4)(10)$ $SA = 112\pi cm^2$	(1) (1) (1)
2)	Here is a cylinder. Calculate the total surface area of the cylinder. Give your answer to 3 significant figures  	$SA = 2\pi r^2 + 2\pi rh$ $SA = 2\pi(1.2)^2 + 2\pi(1.2)(9.2)$ $SA = 78.4mm^2$	(1) (1) (1)

Surface Area of Cylinders - Mark Scheme

3)	Penny has to cover 9 jars completely with paint. Each jar is the shape of a cylinder with no top and a bottom. The jar has a radius of $0.3m$ and a height of $1.4m$. Penny has 10 cans of paint. Each can of paint covers $4m^2$. Does Penny have enough paint to cover the jars? You must show how you get your answer.  	$SA = 2\pi r^2 + 2\pi rh$ $SA = 2\pi(0.3)^2 + 2\pi(0.3)(1.4)$ $SA \approx 3.204m^2$ $3.204m^2 \times 9 = 28.836...m^2$ The total surface area of 9 jars is $28.84m^2$. She has enough paint to cover a surface area of $10 \times 4m^2 = 40m^2$ so therefore she has enough paint to cover the jars.	**(1)** **(1)** **(1)** **(1)** **(1)**