LESSON MAKER PRO

Cylinder Cover-Up

Find the total outside area of right circular cylinders.

GRADE 7 · MA.7.GR.2.2

MA.7.GR.2.2 "Solve real-world problems involving surface area of right circular cylinders."

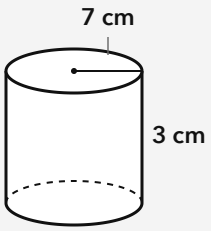
NAME _____ DATE _____

SURFACE AREA RULE

The surface area of a right circular cylinder includes two circular bases and the curved side. Use $SA = 2\pi r^2 + 2\pi rh$, where r is the radius and h is the height. Keep π in your answer unless you are told to use a decimal.

WORKED EXAMPLE

Find the total surface area of the cylinder shown.

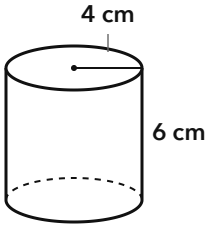


1. Use $SA = 2\pi r^2 + 2\pi rh$.
2. Substitute: $SA = 2\pi(7^2) + 2\pi(7)(3)$.
3. Simplify: $SA = 98\pi + 42\pi = 140\pi$.

Answer: 140π cm²

PRACTICE 6 problems

1 Find the total surface area of the cylinder shown.



ANSWER _____

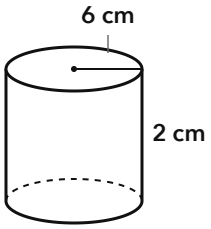
2 A cylinder has a diameter of 10 cm and a height of 4 cm. Find its total surface area.

ANSWER _____

3 Find the total surface area of a cylinder with radius 1 cm and height 9 cm.

ANSWER _____

4 Find the total surface area of the cylinder shown.



ANSWER _____

5 A cylinder has a diameter of 8 cm and a height of 1 cm. Find its total surface area.

ANSWER _____

6 Find the total surface area of a cylinder with radius 5 cm and height 12 cm.

ANSWER _____

APPLY IT Show your work

1 The game club is covering the outside of a cylindrical prize container, including its top and bottom. The container has a radius of 4 cm and a height of 11 cm. How much covering material is needed?

WORK SPACE

ANSWER _____

2 An art club makes 5 identical cylindrical snack-can props for a display. Each prop has a radius of 2 cm and a height of 15 cm. If each prop is painted on its entire outside surface, including both ends, what total area will be painted?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Cylinder A has a radius of 4 cm and a height of 14 cm. Cylinder B has a radius of 6 cm and a height of 8 cm. Which cylinder has the smaller total surface area? Explain by finding both surface areas and the difference.

WORK SPACE AND ANSWER

ANSWER KEY

Cylinder Cover-Up

GRADE 7 · MA.7.GR.2.2

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find the total surface area of the cylinder shown.	**80π cm²**
2	A cylinder has a diameter of 10 cm and a height of 4 cm. Find its total surface area.	**90π cm²**
3	Find the total surface area of a cylinder with radius 1 cm and height 9 cm.	**20π cm²**
4	Find the total surface area of the cylinder shown.	**96π cm²**
5	A cylinder has a diameter of 8 cm and a height of 1 cm. Find its total surface area.	**40π cm²**
6	Find the total surface area of a cylinder with radius 5 cm and height 12 cm.	**170π cm²**

PART 2 · APPLY IT

1. **120π cm²** Use $SA = 2\pi r^2 + 2\pi rh$. Substitute $r = 4$ and $h = 11$ to get $32\pi + 88\pi = 120\pi$ cm².
2. **340π cm²** One prop has surface area $2\pi(2^2) + 2\pi(2)(15) = 68\pi$ cm². Multiply by 5 props: $5(68\pi) = 340\pi$ cm².

CHALLENGE

Cylinder A has the smaller surface area. Cylinder A: 144π cm². Cylinder B: 168π cm². The difference is 24π cm².

Accept equivalent exact expressions with π, such as $2\pi(4^2) + 2\pi(4)(6)$, when simplified correctly. Require square units for surface area.