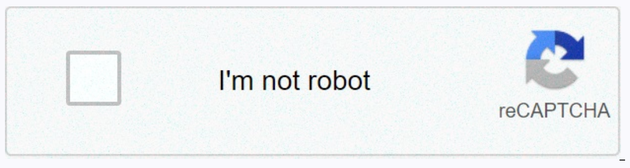

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Word problems involving surface area of a cylinder

If you want to derive a cylinder area formula, let's start by showing you how you can create a cylinder. Start with a rectangle and two circles. Then fold the rectangle until you have opened the cylinder with it. An open cylinder is a cylinder that has no bases. A good real life example of an open cylinder is a pipe used to flow water if you've seen one before. Next, use two circles as the foundation for the cylinder, put one on top of the cylinder and put one under it. Of course, two circles will have exactly the same size or the same diameter as the circles obtained by folding the rectangle. Eventually you'll end up with a cylinder! What have we been through with that tap? Well, if you can make a cylinder with a rectangle and two circles, you can use them to deduce the surface of the cylinder. Does that make sense? The area of these two circles is straightforward. The area of one circle is pi × r2, so for two circles, you get 2 × pi × r2 To find the area of the rectangle is a little more complex and delicate! Let's take a closer look at our rectangle. This means that the longest side or folded side of the rectangle must be equal to 2 × pi × r, which is the circumference of the circle. To get the area of the rectangle, multiply h by 2 × pi × r and that is equal to 2 × pi × r × h Therefore, the total surface area of the cylinder, call it SA is: SA = 2 × pi × r2 + 2 × pi × r × h Example #1: Find the surface area of a cylinder with a radius of 2 cm, and a height of 1 cm SA = 2 × pi × r2 + 2 × pi × r × h SA = 2 × 3.14 × 22 + 2 × 3.14 × 2 × 1 SA = 6.28 × 4 + 6.28 × 2 SA = 25.12 + 12.56 Surface area = 37.68 cm2 Example #2: Find the surface area of a cylinder with a radius of 4 cm, and a height of 3 cm SA = 2 × pi × r2 + 2 × pi × r × h SA = 2 × 3.14 × 42 + 2 × 3.14 × 4 × 3 SA = 6.28 × 16 + 6.28 × 12 SA = 100.48 + 75.36 Surface area = 175.84 cm2 HomepageFinding surface areaSurface area of a cylinder Nov 18 , 20 01:20 PMTop-notch introduction to physics. One stop resource to a deep understanding of important concepts in physics Read More new math lessons Your email is safe with us. We'll only use it to inform you about new maths lessons. In this worksheet, we will practice calculating the surface areas of cylinders and solving verbal problems in the context of the real world. Question 4: There are two cylinders. The first has a radius of 7 and a height of 4 and a second radius of 6 and a height of 7. Which cylinder has a larger surface area? Second cylinder BA first cylinder Q5: Find the surface of the cylinder, the base of which is a circle with a radius of 21 cm and whose height is 9 cm. Use π=227. Question 6: Hannah and Michael calculated a cylinder area of 28 and a radius of 9. Hannah found out that the area is 180π, and Michael found it to be 666π. Who's right? Question 8: the diagram shows a cylinder with a radius r and a height h. The expression for the total area of the cylinder is 2πrh+2πr. What is 2πr represents? Curved surface area Bthe surface area of the base of the cylinder Cthe area of the circular area Dthe area of the two circular surfaces Edouble area of the curved surface Factor the total surface area expression completely. A2πr(h+1) B2πr(h+r) C2r(h+r) Dπr(h+r) E2πrh+r Q9: Determine the displayed cylinder area by the nearest tenth. Q10: Determine, to the nearest tenth, the area of the cylindrical barrel with a diameter of 22 inches and a height of 2.2 inches. Q11: Emma and Mason were calculating the surface of the cylinder height of 16 and the radius of 6. Emma found out the area was 264π, and Mason found it to be 84π. Who's right? Q12: Calculate the lateral area of the cylinder under the round to one decimal place. Related topics: More geometry lessons In these lessons we will learn how to calculate the area of solid cylinders. calculate the area of hollow cylinders or tubes or pipes. solve problems with the word about reels. calculate the area of cylinders using nets. The cylinder is rigid, which has two parallel faces, which are identical circles. These faces form the foundation of the cylinder. The cylinder has one curved surface. The height of the cylinder is perpendicular to the distance between the two bases. The net of the rigid cylinder consists of 2 circles and one rectangle. The curved surface opens and forms a rectangle. Surface area = 2 × area of the circle + rectangle area Surface area = 2πr2 + 2πrh = 2πr(r + h), where radius and h are height. Worksheets Calculate cylinder volume Calculate cylinder area Volume and surface area of cylinders Surface area of cylinders and pipes Example: Cylinder base diameter is 12 cm and height is 8 cm. Find the area of the solid cylinder. Solution: Radius = 6 cm Surface area = 2πr (r + h) = = 528 cm2 How to derive and apply the formula of the surface area of the cylinder? See detailed solutions How do I find the surface of a cylinder? Example: Find the surface area of the cylinder with r = 18in, h = 17in. View detailed solutions How to calculate the surface area of a cylinder in terms of pi? Show detailed solutions Sometimes calculation of the total surface area of a hollow cylinder or tube or pipe may be required. Total surface area of the hollow cylinder = area of the inner curved surface + area of the outer curved surface + area of the two rings Example: The figure shows part of the metal tube. Due to the inner radius of the pipe is 2 cm, the outer radius is 2.4 cm and the length of the pipe is 10 cm. Find the total pipe area r = 2, R = 2,4, h = 10 Total pipe area = surface area of the inner surface + area of the external surface + area of two rings = 2πrh + 2πRh + 2(πR2– πr2) = (2π × 2 × 10) + (2π × 2,4 × 10) + (2π 2 × (2,42π – 22π)) = 40π + 48π + 3,52π = 91,52π = 91,52 × 3,142 = 287,56 cm2 Problem: How many square feet of metal is used to make a container? Show step by step Solution to the problem: Find the reel area without a lid. View detailed solutions Use a cylinder network to determine its volume and area. See step-by-step solutions Try the free Mathway calculator and problem solver below to practice different math topics. Try the examples below, or enter your own problem and check for answers using step-by-step explanations. We welcome your feedback, comments and questions about this site or site. Please submit your feedback or questions through our feedback page. Site.