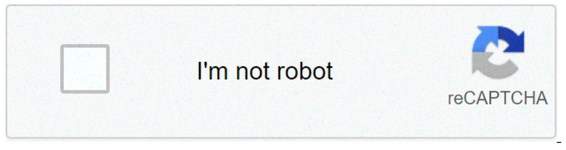

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Surface area of a cylinder word problems worksheet with answers

Master the 7 pillars of school successImprove your grades and lower your stressA sporting good store sells cylinder shaped weights, and needs to know how much plastic is needed to cover the weights for shipping. The cylinder shaped weights have a diameter of 12 inches, and a height of 8 inches.SA = Lateral Area + 2 Base areasSA = pi x 2r x h + 2 pi r^2SA = pi x 12 x 8 + 2 pi 6^2SA = 96 pi + 72 pi SA = 168 pi or 527.52 square inchesThe lateral area of a cylinder is 47.1 cm. The height of the cylinder is 6 units. What is the radius of the cylinder?Lateral Area = pi x 2r x h 47.1 = pi x 2r x 647.1/(6 pi) = 2r2.5 = 2r1.25 = r The total surface area of a cylinder is the total area of each of its faces. The formula for calculating the surface area combines each of the following.Area of two circular basesThe circumference of a circleThe height of the cylinderTo summarize, to find the surface area of a cylinder, take the area of the two circular bases, and add this to the lateral area of the cylinder.Formula for the surface area of a cylinder equalsTranscript Hi Welcome to MooMooMath. Today we are going to talk about the surface area of a cylinder. If you are looking at a can it would be the label of a can, and then the top and bottom lids which are circles so I will divide this into two parts. We will first look at the sides of the soup can if you were to rip the label off. The label actually opens up to form a rectangle. All we have to do is find the area of a rectangle which is length time's width. The length of the label is the distance around the lid which is the circumference which is d times π and d is your diameter. This side of your can is your height and the sides of your can is your lateral area and d times π times h and that is how you get your lateral area. Now I have to add your top and your bottom of the soup can.The top and bottoms are circles and the area of a circle is just π r squared, and you have two of those so take π r squared plus π r squared or 2πr^2 and that gives me the two bases then I'm going to take the sides and I'm going to add to it the two circles that are bases. So let's go back and add the whole formula. The formula looks like this: d•π•h which is your lateral area plus 2πr^2 so the formula is d•π•h + 2πr^2 so let's look at an example. Say I have a cylinder and the height is 5 and the radius is 2 so we will plug in the diameter would be four because if the radius is 2 the diameter is twice that so take 4 times π and the height is 5 so for my lateral area I will get 20 π. Now let's add our bases. We need our radius. Let's go back and we had 2 for the radius so we will take 2 times πr^2 times the radius squared which is 4 and 4 times 2 is 8π and 8 plus 20 is 28 and you stick the π next to it. So that is how you find the surface area. Remember area is 2 dimensional so I will put whatever units it is squared. Because area is two dimensional. So here are the rules. First,add the sides or lateral area plus the two circular bases and the formula is d•π•h + 2πr^2 equals the total surface area. Hope this helps.Height = A to BRadius = C to DDiameter = 2 x radiusFind the surface area of a cylinder with the following dimensions:Height = 5 unitsRadius = 2 unitsDiameter = 2* radius = 2 * 2 =4Step 1 Find the lateral areaDiameter* π*height 4* π*5=20π Step 2 Find the area of the two bases 2πr^2 Which equals 2π2^2=8πStep 3 Add the lateral area and the base area together20π+ 8π=28π units^2Surface Area Formula ChartCalculating the Surface Area of a CylinderSurface area cylinder word problemBased on the information presented either of the following formulas will calculate the lateral area of a cylinder.If given the diameter of the cylinder use:If given the radius of the cylinder use:2πr*h = 2 times pi times radius times height= diameter times pi times heightYou can think of the lateral area as the label of a can. It is the area of the sides of the can. If you unrolled the label you would have a flat surfaced= diameter of the circular baseh= height of the cylinderr = radius of the circular baseSurface area cylinder problem.Common Core Standard : 7.G.6 Surface Area of Cylinders | Integers - Easy Breeze through the concept of surface area with this practice set for 6th grade and 7th grade students. Apply the given radius and height in the formula 2πr(h + r), and find the surface area of the cylinders here. Surface Area of Cylinders | Integers - Moderate Upgrade your practice of calculating the surface area of cylindrical figures from easy to moderate. In an array of cylinders with varied sizes, every cylinder has its radius/diameter and the height clearly depicted. Surface Area of Cylinders | Decimals Help students catch up to their grade standards in determining the surface area of cylinders with these pdf worksheets render the attributes of the figures in decimals. Follow the formula and figure out the surface area. Surface Area of Cylinders | Fractions Let 7th grade students be on top of their game in calculating the surface area of cylinders with this batch of printable worksheets. The radius/diameter and height are given in fractional dimensions. Finding the Missing Measure Extend your skills in finding a missing attribute with these pdf exercises featuring 20+ practice problems. Figure out the missing height, radius, or diameter of the cylinder using the given surface area. This lesson includes 6 additional questions and 126 additional question variations for subscribers. Curved surface area of cylinder is the measurement of outer area, where the extension of top and bottom portion wont be included. Curved surface area of cylinder If a rectangle revolves about one side and completes one full rotation, the solid thus formed is called a right circular cylinder. The above picture shows that how rectangle forms a right circular cylinder. In other words curved surface area is simply said as CSA CSA of cylinder = 2 π r h"r" and "h" stands for radius and height of cylinder. Curved surface area of hollow cylinder A hollow cylinder is a three dimensional solid bounded by two parallel cylindrical surfaces and by two parallel circular bases cut out from two parallel planes by these two cylindrical surfaces. CSA of hollow cylinder = 2πh(R+r)R = external radius, r = internal radius and h = height Example 1 :A solid right circular cylinder has radius of 14 cm and height of 8 cm. Find its CSA.Solution : Radius of the cylinder (r) = 14 cmHeight of the cylinder (h) = 8 cmCurved surface area of cylinder = 2ΠrH= 2· (22/7) · 14 · 8= 704 sq.cmCurved surface area of cylinder = 704 sq.cmSo, curved surface area of cylinder is 704 sq.cmExample 2 :Curved surface area and circumference at the base of a solid right circular cylinder are 4400 sq.cm and 110 cm respectively. Find its height and diameter.Solution :CSA of cylinder = 4400 sq.cmCircumference of the base = 110 cm2ΠrH = 110 ==> 2 · (22/7) · r = 110r = 110 · (1/2) · (7/22)r = 17.5 cmdiameter = 2r = 2(17.5)diameter = 35 cm 2 Π r h = 4400110 · h = 4400 h = 4400/110h = 40 cm Height = 40 cmDiameter of the cylinder = 35 cmSo, height and diameter of cylinder is 40 cm and 35 cm respectively.Example 3 :A mansion has 12 right cylindrical pillars each having radius 50 cm and height 3.5 m. Find the cost to paint the curved surface of pillars at $ 20 per square meter.Solution :The pillars of the mansion are in the shape of cylinder Radius = 50 cm ==> 0.5 mHeight = 3.5 mCSA of one pillar = 2 · (22/7) · 0.5 · 3.5= 2 · 22 · 0.5 · 0.5 ==> 11 m2CSA of 12 pillars = 12 · 11 = 132 m2Cost to paint per m2 = $ 20Total cost = 20 · 132= $ 2640 Hence, total cost of painting 12 pillars is $ 2640Example 4 :The total surface area of a solid right circular cylinder are 231 cm². Its curved surface area is two thirds of the total surface area. Find the curved surface area if cylinder.Solution :Curved surface area = (2/3) · Total surface area 2 Π r h = (2/3) · 231 2 Π r h = 2 · 77 2 Π r h = 154Hence, curved surface area of cylinder is 154 cm2Example 5 :The total surface area of a solid right circular cylinder is 1540 cm². If the height is four times the radius of the base, then find the CSA of cylinder.Solution :Total surface area of cylinder = 1540 cm²CSA of cylinder + top area + bottom area = 1540 cm²2 Π r (h + r) = 1540h = 4 · radius of the base h = 4 r2 Π r (4r+r) = 1540 2 Π r (5r) = 1540 2 · (22/7) · 5 r2 = 1540 = 1540 · (1/2) · (7/22) · (1/5) = (1540 · 7)/(2 · 22 · 5) r2 = 49 r = √(7·7) r = 7 cmCurved surface area of cylinder := 1540 - 2 · (22/7) · 7 · 7= 1540 - 308= 1232 cm2Hence, CSA of cylinder = 1232 cm2. Apart from the stuff given in this section, if you need any other stuff in math, please use our google custom search here. If you have any feedback about our math content, please mail us : v4formath@gmail.comWe always appreciate your feedback. You can also visit the following web pages on different stuff in math. WORD PROBLEMSHCF and LCM word problemsWord problems on simple equations Word problems on linear equations Word problems on quadratic equationsAlgebra word problemsWord problems on trainsArea and perimeter word problemsWord problems on direct variation and inverse variation Word problems on unit priceWord problems on unit rate Word problems on comparing ratesConverting customary units word problems Converting metric units word problemsWord problems on simple interestWord problems on compound interestWord problems on types of angles Complementary and supplementary angles word problemsDouble facts word problemsTrigonometry word problemsPercentage word problems Profit and loss word problems Markup and markdown word problems Decimal word problemsWord problems on fractionsWord problems on mixed fractrionsOne step equation word problemsLinear inequalities word problemsRatio and proportion word problemsTime and work word problemsWord problems on sets and venn diagramsWord problems on agesPythagorean theorem word problemsPercent of a number word problemsWord problems on constant speedWord problems on average speed Word problems on sum of the angles of a triangle is 180 degreeOTHER TOPICS Profit and loss shortcutsPercentage shortcutsTimes table shortcutsTime, speed and distance shortcutsRatio and proportion shortcutsDomain and range of rational functions with holesGraphing rational functionsGraphing rational functions with holesConverting repeating decimals in to fractionsDecimal representation of rational numbersFinding square root using long divisionL.C.M method to solve time and work problemsTranslating the word problems in to algebraic expressionsRemainder when 2 power 256 is divided by 17Remainder when 17 power 23 is divided by 16Sum of all three digit numbers divisible by 6Sum of all three digit numbers divisible by 7Sum of all three digit numbers divisible by 8Sum of all three digit numbers formed using 1, 3, 4Sum of all three four digit numbers formed with non zero digitsSum of all three four digit numbers formed using 0, 1, 2, 3Sum of all three four digit numbers formed using 1, 2, 5, 6 Enjoy this page? 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Worksheets Calculate the volume of cylinders Calculate the surface area of cylinders Volume and surface area of cylinders Surface area of cylinders and pipes Example: The diameter of the base of a cylinder is 12 cm and the height is 8 cm. Find the surface area of the solid cylinder. Solution: Radius = 6 cm Surface area = 2πr (r + h) = = 528 cm2 How to derive and use the formula of the surface area of a cylinder? Show Video Lesson How to find the surface area of a cylinder? Example: Find the surface area of a cylinder with r = 18in, h = 17in. Show Video Lesson How to calculate the surface area of a cylinder in terms of π? Show Video Lesson Surface Area Of A Hollow Cylinder Hollow cylinders like pipes or tubes have internal surfaces to consider. Total surface area of hollow cylinder = area of internal curved surface + area of external curved surface + area of the two rings Example: The figure shows a section of a metal pipe. Given the internal radius of the pipe is 2 cm, the external radius is 2.4 cm and the length of the pipe is 10 cm. Find the total surface area of the pipe. Solution: r = 2, R = 2.4, h = 10 Total surface area of pipe = area of internal surface + area of external surface + area of the two rings = 2πrh + 2πRh + 2(πR2– πr2) = (2π × 2 × 10) + (2π × 2.4 × 10) + (2 × (2.42π – 22π)) = 40π + 48π + 3.52π = 91.52π = 91.52 × 3.142 = 287.56 cm2 How many square feet of metal are used to make the can? Show Video Lesson Find the surface area of a cylinder without the lid. Show Video Lesson Surface Area Of Cylinder Using Nets Use the net of a cylinder to determine its volume and surface area. Show Video Lesson Try the free Mathway calculator and problem solver below to practice various math topics. Try the given examples, or type in your own problem and check your answer with the step-by-step explanations. We welcome your feedback, comments and questions about this site or page. 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