Circle and Cylinder Word Problems

Circumference of a Circle

- The Circumference of a circle can be calculated using the formulae:

  \[ C = 2\pi r \quad \text{or} \quad C = \pi d \]

- Where \( d \) is the diameter, \( r \) is the radius and \( \pi = 3.14 \) to 2 decimal places
You ordered a pepperoni pizza with a circumference of 69.1 cm.
a) What is the area of the pizza, to the nearest square centimetre?
b) The pizza is cut into slices from the centre. If each slice measures
8.6 cm along the curved edge, how many slices will there be? Explain.

\[
\begin{align*}
C &= 2\pi r \\
69.1 &= 2 \times 3.14 \times r \\
\frac{69.1}{2} &= 3.14 \times r \\
34.55 &= 3.14 \times r \\
\frac{34.55}{3.14} &= r \\
11 \text{ cm} &= r \\

\text{Area} &= \pi r^2 \\
&= 3.14 \times 11^2 \\
&= 379.94 \text{ cm}^2 = 380 \text{ cm}^2
\end{align*}
\]

(b) \[ \frac{69.1 \text{ cm}}{8.6 \text{ cm}} = \frac{69.1}{8.6} = 8 \text{ slices} \]
A circular pool with a diameter of 20 m was built with a surrounding circular deck. The circumference of the deck is 72.2 m. Calculate the width of the deck. What is the area of the pool and the area of the deck?

To calculate the volume we need to know the height of the cylinder and its radius.

\[
\text{Volume}_{\text{cylinder}} = \pi r^2 h
\]

The \(\pi r^2\) represents the area of the circle and the \(h\) represents the height of the stack of circles.
To calculate the surface area we again need to know the height of the cylinder and its radius.

Surface Area\text{\_cylinder} = 2\pi r^2 + 2\pi rh

The "2\pi r^2" represents the area of the two circles (top and bottom) and the "2\pi rh" represents the area of the rectangle that joins the circles together.

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**Online Cylinder Calculator!**


Yes, just put in the radius and height and it will calculate the volume and surface area for you.

Great for checking your answers, not so great for tests when you have to show your working.
If you had to paint the outside of this trough, what size area would you have to paint?

Find SA of half the cylinder.

\[ \text{SA}_{\text{whole}} = 2\pi r^2 + 2\pi rh \]

\[ = 2 \times 3.14 \times 25^2 + 2 \times 3.14 \times 25 \times 50 \]

\[ = 3925 + 31400 \]

\[ = 35325 \text{ cm}^2 \]

But I want HALF of the cylinder

\[ 35325 \div 2 = 17662.5 \text{ cm}^2 \]