

Take-Up Circle Word Problems from Circles 3 Handout

Oct 16-14:07

- 9). Lynne goes for a cycle ride. Each wheel on her bike has a radius of 22 cm.
- Find the circumference of her wheels.
 - Her distance counter tells her she has travelled 430 **metres**. How many times have the wheels fully rotated ?

$$\begin{aligned} \text{a) } C &= 2\pi r \\ &= 2 \times 3.14 \times 22 \\ &= 138.16 \text{ cm} \end{aligned}$$

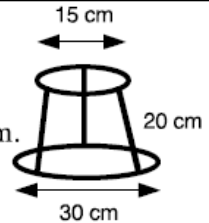
$$\begin{aligned} \text{b) } 430 \text{ m} &= 430 \times 100 \\ &= 43000 \text{ cm} \end{aligned}$$

$$\begin{aligned} \# \text{ rotations} &= \frac{43000}{138.16} = 311.2 \\ &= 311 \text{ full revs.} \end{aligned}$$

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11). This is the wire frame of a lampshade. It is made up of two circles of wire and three straight lengths of wire.

- a). The larger circle has a diameter of 30 cm. What is the circumference?
 b). The straights are 20 cm each. The diameter of the smaller circle is 15 cm.
 Calculate the total length of wire needed to make the frame.



$$\begin{aligned} a) \quad C &= \pi d \\ &= 3.14 \times 30 \\ &= 94.2 \text{ cm} \end{aligned}$$

$$\begin{aligned} b) \quad C_s &= \pi d \\ &= 3.14 \times 15 \\ &= 47.1 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{Total} &= 94.2 + 47.1 + 3 \times 20 \\ &= 201.3 \text{ cm} \end{aligned}$$

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12). Metal discs that have a radius of 12 cm can be remoulded into square metal sheets of the same thickness.

- a). I have 20 of the discs, what is the total area of metal that I have ?
 b). This is to be made in to a square metal sheet. What size would this be ?

$$\begin{aligned} a) \quad \text{One disc} &= \pi r^2 \\ &= 3.14 \times 12^2 \\ &= 452.16 \text{ cm}^2 \\ \Rightarrow 20 \text{ discs} &= 20 \times 452.16 \\ &= 9043.2 \text{ cm}^2 \end{aligned}$$

$$\begin{aligned} b) \quad & \begin{array}{c} x \\ \square \\ x \end{array} \quad \begin{array}{l} 9043.2 \\ x \times x = 9043.2 \\ \Rightarrow x = \sqrt{9043.2} \\ x = 95.1 \text{ cm} \end{array} \end{aligned}$$

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