

Answer on Question55210 - Physics / Mechanics — Kinematics — Dynamics - for completion

October 1, 2015

A string of wood is wound around a wheel of radius $R = 20\text{cm}$. How large is the angle through which the wheel must turn to unwind $l = 30\text{cm}$ of the string?

Solution

If α is the angle through which the wheel must turn, then the the length of the string can be represented as:

$$l = R\alpha$$

The angle:

$$\alpha = \frac{l}{R} = \frac{30\text{cm}}{20\text{cm}} = 1.5\text{rad}$$

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