

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

October 1, 2015

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

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

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