

DYNAMICS ASSIGNMENT

Planar Kinetics of a Rigid Body (Work and Energy Method)

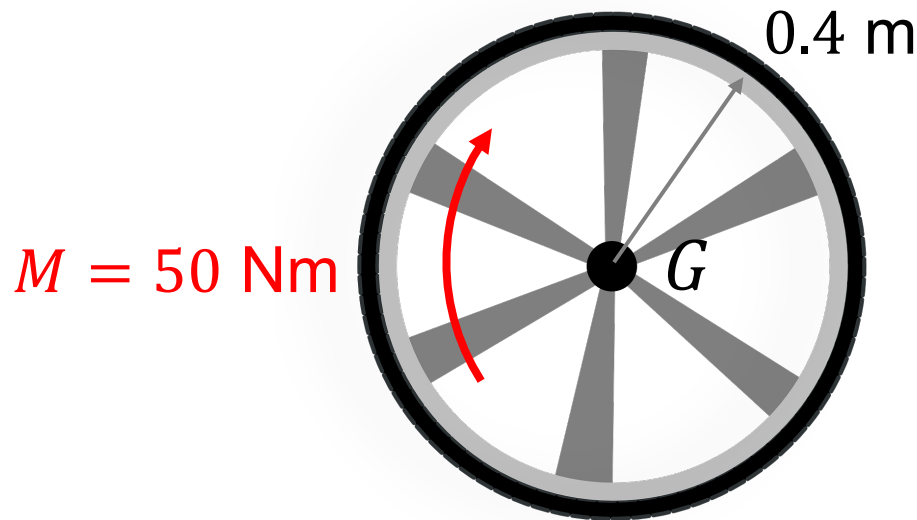
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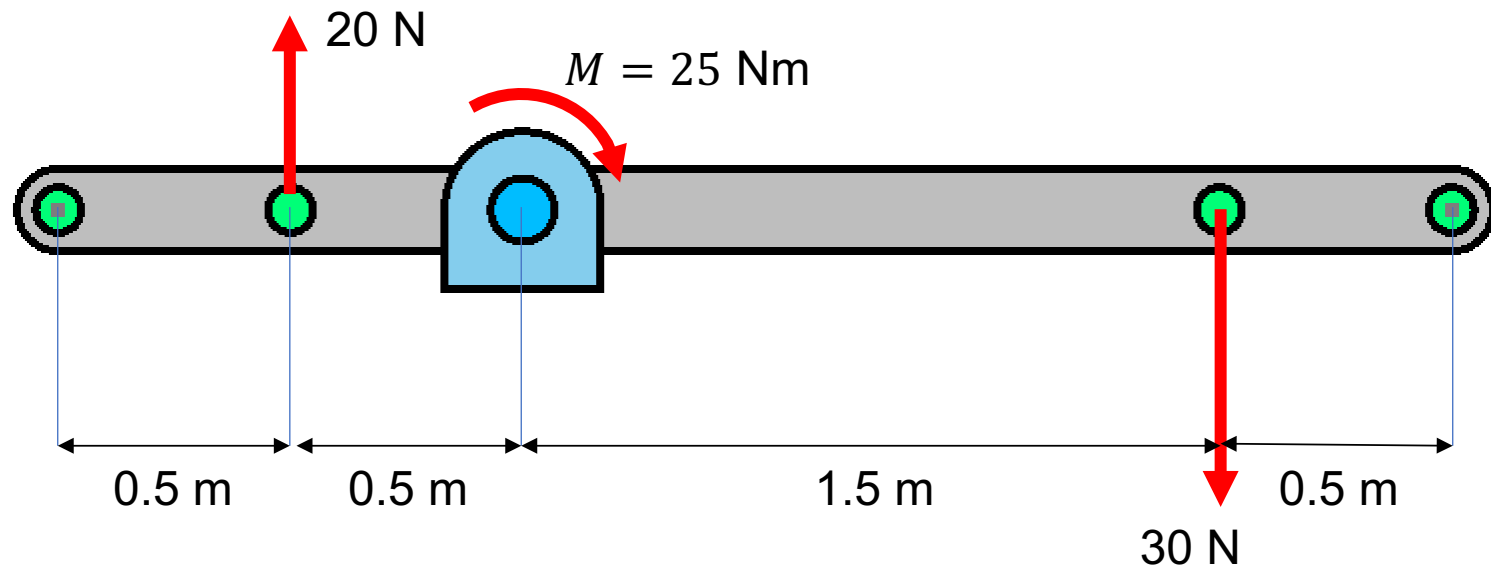
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Question 1



The 15 kg wheel has a radius of gyration about its center G of $k_G = 280 \text{ mm}$. When it is subjected to a couple moment of $M = 50 \text{ Nm}$, it rolls without slipping. Determine the angular velocity of the wheel after its mass center G has traveled through a distance of $s_G = 10 \text{ m}$, starting from rest.

Question 2



If the uniform 40 kg slender rod starts from rest at the position shown, determine its angular velocity after it has rotated 5 revolutions. The forces remain perpendicular to the rod.