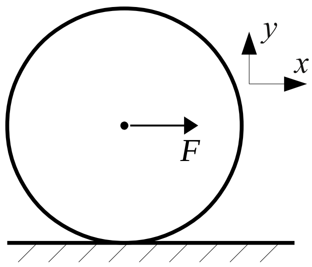
Basics of Statics and Dynamics (BMEEOTMAT41)		Name:	NEPTUN:
		Date (dd/mm/yy): / /	
Test 2	_	Use pencil. Take care of readability of your work. Do not write into gray blocks. Partial points are not available for questions *typeset in italic*.	**Total points:**

A solid wheel of mass $m = 10\,\mathrm{kg}$ and radius $R = 10\,\mathrm{cm}$ is driven on a horizontal plane by a force $F = 150\,\mathrm{N}$ through its centre. The wheel starts from rest and moves with pure rolling (rolling resistance is neglected, friction is sufficient to ensure a pure rolling motion). Find the angular acceleration of the wheel.
Calculate the distance covered by the center of mass of the wheel to reach an angular velocity $\omega = 10\,\mathrm{rad/s}$?



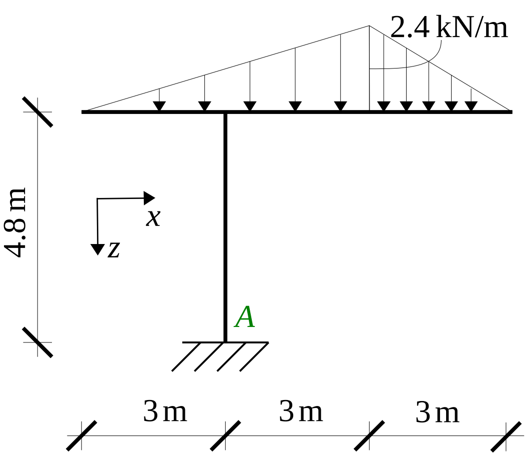
20 *pts*

State the work-energy theorem for a rigid body.
If equations are written instead of phrasal definition, give the meaning as well as the formula for calculation of each variable involved.

10 *pts*

Calculate the reactions of the structure given below. 20 *pts*

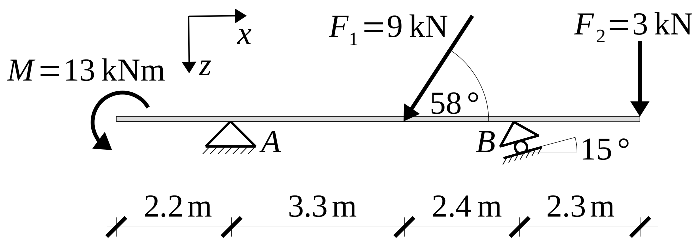
Make a final sketch.



Isolate the structure given in the figure. 10 *pts*

Qualify the structure from the aspect of statical determinacy by accounting for the number of independent equations and unknowns.

Calculate the reactions of the structure given below. *Make a final sketch*.	20 *pts*



Calculate the reactions of the structure given below. *Make a final sketch*.	20 *pts*