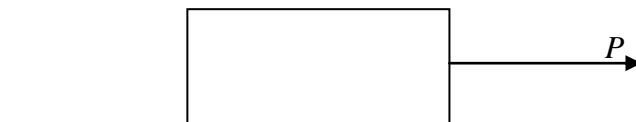


# MEI How to Guides for GeoGebra

## Mechanics: Creating a basic force diagram in GeoGebra

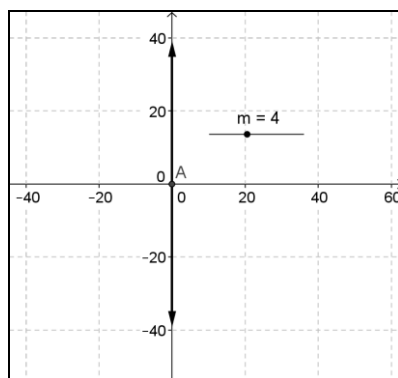
### Problem:

A block of mass  $m$  is resting on a rough horizontal plane. The block is pulled by a force  $P$  which is insufficient to move the block. Draw a force diagram of the forces acting on the block.



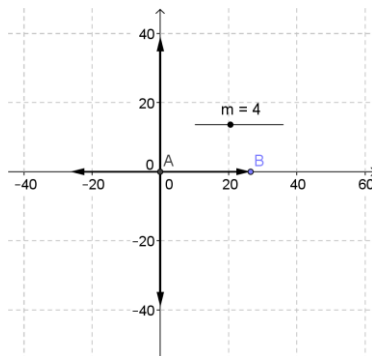
### Creating a point for the particle and vectors for the weight and normal reaction

- 1 Add a **Point** (2<sup>nd</sup> menu) to represent the block modelled as a particle (for convenience place the point on the origin).
- 2 Add a **Slider** for the mass (10<sup>th</sup> menu). Set the name to  $m$  and set the min to 0 and the max to 10.
- 3 Using the input bar at the bottom of the screen enter:  **$w=(0,-9.8m)$** .  
*You may need to zoom-out (11<sup>th</sup> menu) to see the point.*
- 4 Using the input bar enter:  **$r=(0, 9.8m)$**



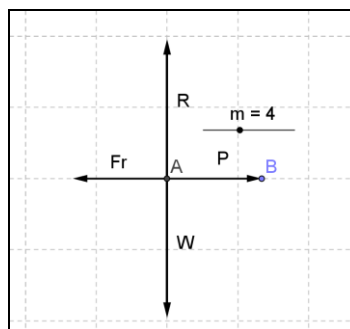
### Creating vectors for the pulling force and friction

- 5 Add a **Point** on the x-axis, B.
- 6 Use the **Vector** tool (3<sup>rd</sup> menu) to create a vector between A and B.  
*NB this vector should be automatically named "u".*
- 7 Using the input bar enter:  **$fr=-u$**



### Tidying-up the display

- 8 The Graphics Style Bar allows you changing the colour and thickness of lines, removed the axes and add labels.
- 9 To rename an object right-click on it and select "Rename".



View on GeoGebraTube: <http://tube.geogebra.org/material/show/id/223057>