## **≡** Item Navigation

## Mass Flux Through a Pipe

Calculate the mass flux of a laminar fluid of density  $\rho$ , viscosity  $\nu$  and constant pressure gradient G passing through a cross section of a pipe of radius R. Choosing z as the symmetry axis for the pipe, the velocity of the fluid is given by

$$oldsymbol{u}(oldsymbol{r}) = u_{
m m} \left(1 - \left(rac{r}{R}
ight)^2
ight) oldsymbol{k}$$
 ,

where  $oldsymbol{r}$  is the radial coordinate in the cross section and

$$u_{
m m}=rac{GR^2}{4
u
ho}$$

is the maximum velocity of the fluid in the center of the pipe.

Completed	Go to next item
-----------	-----------------

