Ex) A jet strikes a vane which moves to the right at constant velocity on a frictionless cart. Compute (a) the force required to restrain the cart and (b) the power delivered to the cart. Also find the cart velocity for which (c) the force is a maximum and (d) the power is a maximum.



**Solution:**

where,

Assume relative inertial coordinates with non-deforming CV i.e. CV moves at constant translational non-accelerating

and steady flow with

Continuity:

Momentum:

0