The volume flow rate *q* (L3 T-1) for laminar flow in a pipe depends on the radius r (L) , the viscosity µ (M L-1 T-1) of the fluid, and the pressure drop per unit length dp / dz (M L-2 T-2) .

a) Develop a model for the flow rate *q* as a function of r , µ , and dp / dz.

b) How does *q* change if the radius is increased by a factor of two?