

5. (8 points) A potter has a fixed volume of clay in the form of a cylinder. As he rolls the clay, the length of the cylinder,  $L$ , of increases, while the radius,  $r$ , decreases. If the length of the cylinder is increasing at a constant rate of 0.2 cm per second, find the rate at which the radius is changing when the radius is 1.5 cm and the length is 4 cm.

[Recall that the volume of a cylinder of radius  $r$  and length  $L$  is  $\pi r^2 L$ .]