

**[mex11] Water projected into air by wheel rolling on wet road**

A wheel of radius  $R$ , which is part of some vehicle, is rolling along a wet road with speed  $v$ . Drops of water are being continuously thrown off the rim. Show that if  $v^2 > Rg$  then the maximum height above the road attained by the drops is

$$R + \frac{v^2}{2g} + \frac{R^2g}{2v^2}.$$

**Solution:**