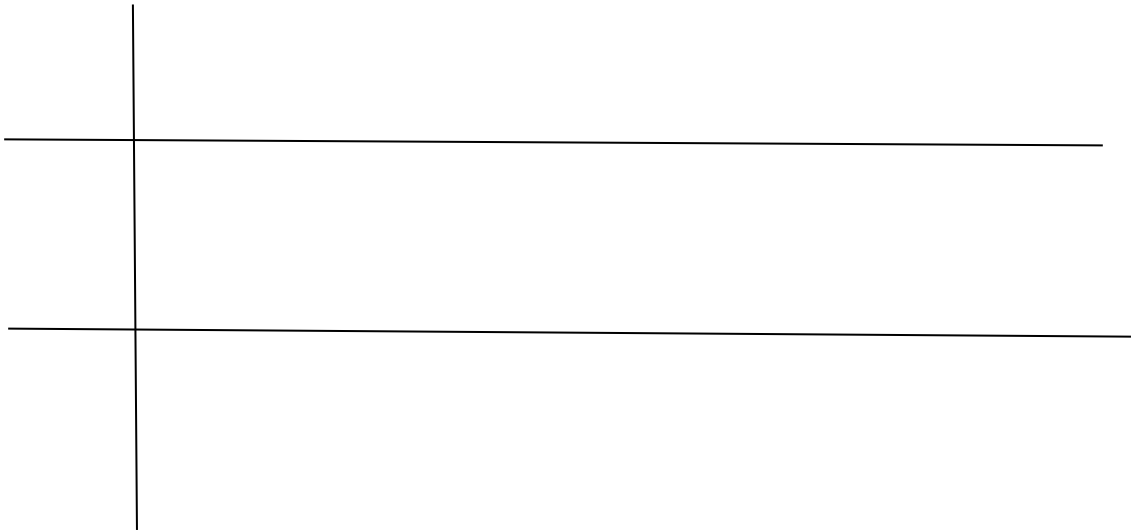

$\frac{2R}{3}$

$k\frac{4R^3}{27}$