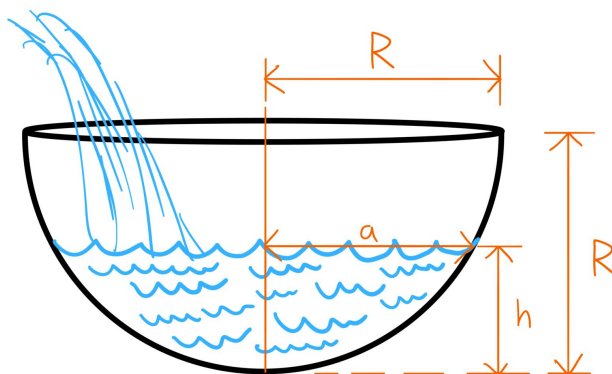


MATH 7A
Summer 2022
Group Activity 4

The formula for the volume of the water in a semi-spherical bowl in terms of the water's height h and the radius of the water's surface a is given by

$$V = \frac{1}{6}\pi h(3a^2 + h^2)$$

for $0 \leq h \leq R$ and $0 \leq a \leq R$.



Water is being filled in the semi-spherical bowl at a rate of $1,200 \text{ cm}^3/\text{sec}$. If the maximal radius of the bowl is 40 cm , what is the rate of the water rising when the height of the water is 20 cm ?

Either express your final answer as an exact expression or approximate it to two decimal places. Don't forget units in your final answer! You may use a calculator for this activity.