

## Answer on Question 49668, Physics, Mechanics | Kinematics | Dynamics

### Question:

A pump with a power output of 600W raises water from a lake through a height of 3m and delivers it with a velocity of 6 m/s. What mass of water is removed from the lake in one minute?

### Solution:

By the definition of power we have:

$$P = \frac{W}{t} = \frac{mgh}{t}.$$

From this formula we can obtain the mass of water removed from the lake in one minute:

$$m = \frac{Pt}{gh} = \frac{600W \cdot 60s}{9.8 \frac{m}{s^2} \cdot 3m} = 1224.5kg.$$

### Answer:

The mass of water removed from the lake in one minute is 1224.5kg.