70064, Physics / Mechanics | Relativity

Question From a dam, water is pouring down at the rate of 150 kg/s, on the blades of a turbine. If a ball dropped from the same dam takes $2\sqrt{5}$ s to hit the turbine, then the power delivered to the turbine is approximately equal to? (Take g=10 m/s)

Solution First we find the height:

$$h = gt^2/2 = 10 \cdot (2\sqrt{5})^2/2 = 100\, m$$

Now we can find power:

$$N = \Delta mgh = 150 \cdot 10 \cdot 100 = 1.5 \cdot 10^5\, W$$