Question:

The user's question is: a 2.5 gram ping pong ball at rest is set in motion by the use of 1.8 J of energy. if all the energy goes into the motion of the ball, what is the balls maximum speed?
I have an answer of 36 or 38 but I don't know how it was derived (detail)

Solution:

According to energy conservation law $E = \dfrac{mv^2}{2}$, respectively

$$v = \sqrt{\frac{2E}{m}} = \sqrt{\frac{2 \cdot 1.8}{2.5 \cdot 10^{-3}}} = 10\sqrt{14.4} = 37.9 \text{ (m/s)}.$$

The answer:

$$v = \sqrt{\frac{2E}{m}} = 37.9 \text{ m/s}.$$