

Answer on Question #69593-Physics-Other

Q1. In 1865, Jules Verne proposed sending men to the Moon by firing a space capsule from a 220 metre long cannon with a final velocity of 10.97 km/s.

What would be the initial velocity of the capsule, v_i in metres per second?

Answer: $0 \frac{m}{s}$.

Q2. The acceleration in Jules Verne's capsule would have been monstrous.

Acceleration, $a = \frac{v_f - v_i}{t}$, but we need to know how long the capsule is in the cannon, t .

We know the length of the cannon, so we could find out time by dividing the length by the average velocity of the capsule

What is the average velocity of the capsule, v_a with bar on top equal $\frac{v_f + v_i}{2}$ in m/s?

Answer: $5485 \frac{m}{s}$.

$$v_a = \frac{v_i + v_f}{2} = \frac{0 + 10970}{2} = 5485 \frac{m}{s}$$

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