

Answer on Question #62209-Physics – Mechanics | Relativity

A water tank is on the roof of a house. a faucet is opened on the ground floor 140 ft below the water level in the tank .with what velocity will water emerge from the faucet

Solution

From the conservation of energy law:

$$mgh = \frac{mv^2}{2}$$

$$v = \sqrt{2gh} = \sqrt{2 \left(9.8 \frac{m}{s^2}\right) \left(140 \text{ ft} \cdot 0.3048 \frac{m}{ft}\right)} = 29 \frac{m}{s}$$

Answer: $29 \frac{m}{s}$.

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