

Answer on Question 67163, Physics, Other

Question:

An express elevator average speed is 9 m/s in its climb to the 20-th floor, 80 m above the ground. Assuming a load of 1000 kg , what average power must the lifting motor supply?

Solution:

By the definition of the power we have:

$$P_{avg} = Fv = mgv = 1000 \text{ kg} \cdot 9.8 \frac{\text{m}}{\text{s}^2} \cdot 9 \frac{\text{m}}{\text{s}} = 88200 \text{ W.}$$

Answer:

$$P_{avg} = 88200 \text{ W.}$$

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