

## Answer on Question 63533, Physics, Electric Circuits

### Question:

A refrigerator is equipped with an electric motor that draws  $100\text{ W}$  but operates only 25% of the time. What is the cost of operating the refrigerator for 30 days if the electricity cost  $0.080\text{ \$/kWh}$ ?

### Solution:

Let's first calculate how many days the refrigerator will operate (as we know from the initial conditions of the task that it operates only 25% of the time during these 30 days):

$$30\text{ days} \cdot 0.25 = 7.5\text{ days}.$$

Let's convert days to hours:

$$7.5 \cdot 24\text{ hours} = 180\text{ hours}.$$

Finally, we can find the cost of operating the refrigerator for 30 days if the electricity cost  $\$0.080/\text{kWh}$ :

$$\text{Cost} = \text{Rate} \cdot \text{Hours} \cdot \text{Power} = 0.080 \frac{\$}{\text{kWh}} \cdot 180\text{ hours} \cdot 0.1\text{ kW} = \$1.44.$$

### Answer:

$$\text{Cost} = \$1.44.$$