Name\_\_\_\_\_\_\_\_\_\_\_\_\_

Calculate the cost of charging a mobile phone from 0 to 100%. The other details are given below:

Electricity rate: $0.12/kWh

Charging time: 2 hours from 0 to 100%

Mobile phone charger current rating: 2 Amps

Mobile phone charger voltage rating: 5 Volts

| *Required formula*  *P = VI*  *P = E/T*  **Step 1: Calculate the power rating of the charger**  **Step 2: Calculate the energy consumed in two hours**  **Step 3: Calculate the cost of charging** |
| --- |

A solar charger costs $30 and has a power output of 10 Watts. If the average cost of electricity is $0.15 per kilowatt-hour (kWh) and the wattage rating of a mobile charger is 5 Watts, calculate in how much time the cost of the solar charger will be recovered through savings in electricity. Assume the mobile charger is used twice a day to charge a phone.

| 1.Calculate the hourly energy consumption of the mobile charger  2. Calculate the daily energy consumption in kWh  3. Calculate the daily cost savings  4. Calculate the number of years to recover the cost |
| --- |