Science 9 - Energy Practice Questions

Energy [Joules] = **Power** [Watts] x **Time** [second]

E [J] = P [W] x t [s]

1. A lamp needs 250 W of power from a generator. How much energy does the lamp convert in 5 seconds?

E = 1,250 J

2. An automobile battery that uses 2520 W of power is connected to an electric starter motor. How many joules of energy does the battery deliver to the motor each second?

E = 2,520 J

3. An automobile headlight uses 1500 W of power. How much energy does the headlight convert in 10 seconds?

E = 15,000 J

4. A transistor radio uses 300 W of power every second. How much electrical energy does the radio use?

E = 300 J

5. A battery produces 3 W of power. How much electric energy is delivered in 5 minutes?

E = 900 J

6. A battery uses 500 J of energy every 10 seconds. How much power does it produce?

P = 50 w

7. A motor converts 100 W of power into 500 J of electrical energy. How long does it take the motor?

t = 5 s

8. How much energy does a 60 W light bulb use in 30 minutes?

E = 108,000 J

9. A flashlight bulb is connected across a 3 V difference in potential. The current through the lamp is 2 A. How much electric energy does the lamp convert in 10 seconds?

E = 60 J

10. An electric motor uses 1000 J of energy in 1 minute. How much power does it need?

P = 16.67 w

11. The current through the starter motor of a car is 200 A. If the battery keeps 10 V across the motor, what is the electric energy delivered to the starter in 5 s?

E = 10,000 J

12. An electric space heater draws 15 A from a 120 V source. It is operated, on the average, for 1 hour each day? How much energy does it consume in 10 days?

E = 64,800,000 J

13. A digital clock has an operating resistance of 500 Ω and is plugged into a 1000 V outlet. Assume the clock obeys Ohm's law. How much energy does it use in 30 minutes?

E = 3,600,000 J