

Power Worksheet

1. What is the potential difference in kW, when a microwave runs on 1.2 A and uses 300 W of power?

$$V = \frac{P}{I} = \frac{300}{1.2} = 250 \text{ V}$$

2. You have 40 W, 60 W and 90 W light bulbs. If you wanted to have the most light possible in your room, which light bulb would you use? Explain why.

90 W - has more power = brighter light.

3. It is in November and all the leaves are falling. You go to the store to buy a leaf blower. Cost is irrelevant as long as you get the leaf blower that will do the job the fastest. You have two choices:

Leaf blower 1 uses 120 V and 1.5 A

Leaf blower 2 uses 120 V and 4.5 A

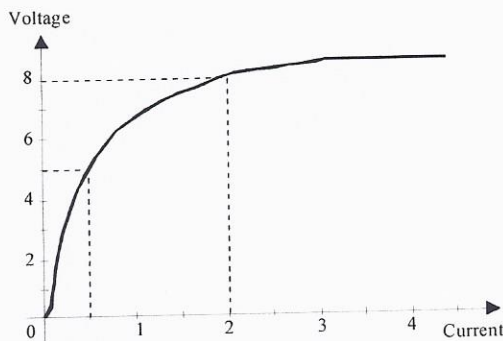
Which one should you choose and explain why?

$$1 \quad 120 \times 1.5 = 180 \text{ W}$$

$$2 \quad 120 \times 4.5 = 540 \text{ W}$$

Use # 2 because has more power since has ↑ current.

4. The following graph shows the variation of the voltage across the terminals of a ceramic element as a function of the intensity of the current passing through it.



$$P = I V$$

$$= 5 \times 0.5 = 2.5 \text{ W}$$

- What power is dissipated when this ceramic element is connected to a voltage of 5.0 V?
- A) 20 W B) 10.0 W C) 5.0 W **D) 2.5 W**

5. A domestic power supply of 110 V is protected by a 25 A fuse. How many light bulbs with specifications 110 V - 150 W, can be installed in one circuit without blowing the fuse?

- A) 24 **B) 18** C) 12 D) 6

$$P = I V$$

$$110 \times 25 = 2750 \text{ W}$$

$$\frac{2750}{150} = 18.3$$