

$$P = I \times V$$

Power worksheet

2011-2012

1. What is the power formula? Include the units.

$$P (W) = I (A) \times V (V)$$

2. What happens to the power when current and voltage increases?

Increases

3. How do you convert a watt to a kilowatt?

$$\div 1000$$

4. What is the power of a dishwasher using 220 V and 1.5 A?

$$P = (1.5)(220) = \boxed{330 W}$$

5. What is the power in kW when a dishwasher uses 220 V and 1.5 A?

$$P = (1.5)(220) = 330 W \div 1000 = \boxed{0.3 kW}$$

6. What is the current for a lamp that uses 200 W of power and 220 V?

$$I = \frac{P}{V} = \frac{200}{220} = \boxed{0.91 A}$$

7. What is the potential difference when a microwave runs on 2.2 A and uses 400 W of power?

$$V = \frac{P}{I} = \frac{400}{2.2} = \boxed{181.82 V}$$

8. What is the power in kW, when the current intensity of an appliance is 3 A and the voltage is 25 V?

$$P = (3)(25) = 75 W \div 1000 = \boxed{0.075 kW}$$

9. Find the current intensity for a lamp that uses 90 W of power and 200 V?

$$I = \frac{90}{200} = \boxed{0.45 A}$$

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

$$V = \frac{300}{1.2} = 250 V$$

$$P = I \times V$$

11. Find the current intensity for a lamp that uses 100 W of power and 200 V?

$$I = \frac{100}{200} = 0.5 \text{ A}$$

12. You have 40 W, 60W 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 as the higher the power the greater the current will be for a given voltage $I = \frac{P}{V}$

13. Which appliance produces more power?

a- a light bulb at 0.5 A and 15 V?

☒ b- a computer that runs on 4 A and 120 V?

c- an electric toothbrush that has 120 V and 0.8 A?

$$a) P = (0.5)(15) \\ P = 7.5 \text{ W}$$

$$b) P = (4)(120) \\ P = 480 \text{ W}$$

$$c) P = (0.8)(120) \\ P = 96 \text{ W}$$

14. It is 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:

1- uses 120 V and 1.5 A

2- uses 120 V and 4.5 A

Which one should you choose and explain why?

#2 ; higher power!