

Multiple Formula Worksheet

1. What is the power of an appliance if it works on 5 A and has a 36 Ω resistor?

$$P = IV$$

$$5 \times 180 = 900W$$

$$V = RI$$

$$36 \times 5 = 180V$$



2. What is the resistance of a resistor if it uses 120 V and 200 W of power?

$$R = \frac{V}{I} \frac{120}{1.7}$$

$$70.6\Omega$$

$$I = \frac{P}{V} \frac{200}{120} = 1.7A$$



3. What is the resistance of a resistor if a circuit is on for 3 minutes, used 2 000 J of energy and had 1.5 A?

$$R = \frac{V}{I} \frac{7.4}{1.5} = 4.9\Omega$$

$$V = \frac{E}{It} \frac{2000}{(1.5 \times 3 \times 60)} = 7.4V$$



4. What is the resistance of a resistor if a circuit is on for 4 hours, used 100 000 J of energy and 220 V?

$$R = \frac{V}{I} \frac{220}{0.032} = 6875\Omega$$

$$I = \frac{E}{Vt} \frac{100000}{(220 \times 4 \times 3600)} = 0.032A$$



5. What is the power of an appliance if it works on 1.5 A and has a 12 Ω resistor?

$$P = IV$$

$$1.5 \times 18$$

$$27W$$

$$V = RI$$

$$12 \times 1.5 = 18V$$



6. What is the resistance of a resistor if a circuit is on for 45 minutes, used 40 000 J of energy and had 3 A?

$$R = \frac{V}{I} \frac{4.9}{3} = 1.6\Omega$$

$$1.6\Omega$$

$$V = \frac{E}{It} = \frac{40000}{(3 \times 45 \times 60)} = 4.9V$$



7. What is the power of an appliance if it works on 12 A and has a 6 Ω resistor?

$$P = IV$$

$$12 \times 72 =$$

$$864 \text{ W}$$

$$V = RI$$

$$12 \times 6 =$$

$$72 \text{ V}$$

8. What is the resistance of a resistor if it uses 1220 V and 900 W of power?

$$R = \frac{V}{I} = \frac{1220}{.74} =$$

$$1649 \Omega$$

$$I = \frac{P}{V}$$

$$\frac{900}{1220} = .74 \text{ A}$$



9. What is the resistance of a resistor if a circuit is on for 19 minutes, used 12 000 J of energy and had 3.5 A?

$$R = \frac{V}{I} = \frac{3}{3.5} =$$

$$.86 \Omega$$

$$V = \frac{E}{It}$$

$$\frac{12000}{(3.5 \times 19 \times 60)} = 3 \text{ V}$$



10. What is the resistance of a resistor if a circuit is on for 2 hours, used 200 000 J of energy and 220 V?

$$R = \frac{V}{I} = \frac{220}{.13} =$$

$$1692.3 \Omega$$

$$I = \frac{E}{Vt}$$

$$\frac{200000}{(220 \times 2 \times 3600)} = .13 \text{ A}$$



11. What is the power of an appliance if it works on 9 A and has a 120 Ω resistor?

$$P = IV$$

$$9 \times 1080$$

$$9720 \text{ W}$$

$$V = RI$$

$$9 \times 120$$

$$1080 \text{ V}$$

12. What is the resistance of a resistor if a circuit is on for 90 seconds, used 15 000 J of energy and had 3 A?

$$R = \frac{V}{I} = \frac{55.6}{3} =$$

$$18.5 \Omega$$

$$V = \frac{E}{It}$$

$$\frac{15000}{(3 \times 90)} = 55.6 \text{ V}$$

