

Module 8 - Practice Problems

AC Circuits

1. If the effective voltage in an AC circuit is 60.0 V, what is the maximum voltage?
2. If the maximum current in an AC circuit is 45.5 A, what is the average current?
3. If the effective current in an AC circuit is 72.3 mA, what is the average current?
4. If the maximum voltage in an AC circuit is 12.0 V, what is the effective voltage?
5. If the maximum current through a 22.2 Ω resistor in an AC circuit is 8.50 A, what is the maximum voltage across it?
6. If the effective voltage across a 165 Ω resistor in an AC circuit is 36.0 V, what is the effective current through it?
7. If the maximum current through an 85.5 Ω resistor in an AC circuit is 0.445 A, what is the effective voltage across it?
8. If the effective voltage across a 360 Ω resistor in an AC circuit is 22.0 V, what is the maximum current through it?
9. How much power is consumed by a 42.0 Ω resistor in an AC circuit if the effective voltage across it is 3.50 V?
10. How much power is consumed by a 7.80 Ω resistor in an AC circuit if the maximum voltage across it is 9.00 V?
11. How much power is consumed by a 23.0 Ω resistor in an AC circuit if the average current through it is 1.89 A?
12. When a certain resistor is placed across a 13.5 V effective voltage in an AC circuit, it draws an average current of 24.5 mA.
 - a. What is its resistance?
 - b. How much power does it consume?
13. When an 83.3 Ω resistor is placed in an AC circuit with a maximum voltage of 18.0 V:
 - a. What is the effective current?
 - b. How much power does it consume?
 - c. How much energy does it consume in 6.00 hours?
14. If the maximum current through a 375 Ω resistor in an AC circuit is 5.82 mA:
 - a. What is the effective voltage across it?
 - b. How much power does it consume?
15. If the effective current through a 67.5 Ω resistor in an AC circuit is 2.78 A:
 - a. What is the maximum voltage across it?
 - b. How much power does it consume?

Good luck!

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Answers:

1. 84.9 V
2. 28.9 A
3. 65.0 mA
4. 8.48 V
5. 189 V
6. 0.218 A
7. 26.9 V
8. 86 mA
9. 0.292 W
10. 5.19 W
11. 102 W
12. a) 496 Ω b) 0.368 W
13. a) 0.153 A b) 1.94 W c) 42.0 kJ
14. a) 1.54 V b) 6.35 mW
15. a) 265 V b) 522 W