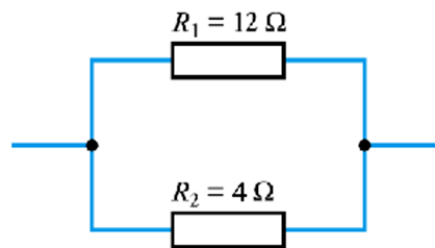


5. Calculate the effective resistance of the following combination:



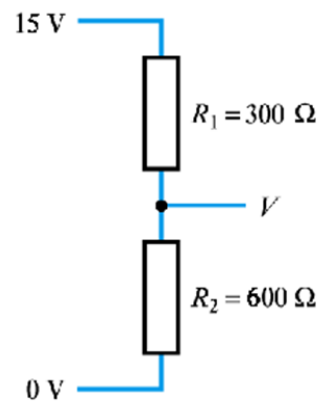
- a) $49\ \Omega$ b) $39\ \Omega$ c) $12\ \Omega$ d) $52\ \Omega$

6. Calculate the effective resistance of the following combination:



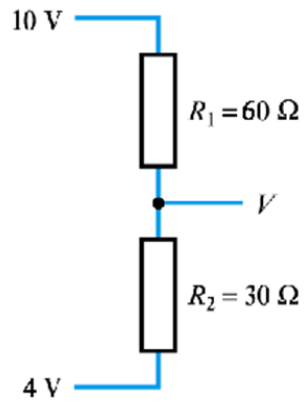
- a) $6\ \Omega$ b) $16\ \Omega$ c) $3\ \Omega$ d) $8\ \Omega$

7. Calculate the output voltage V of the following circuit:



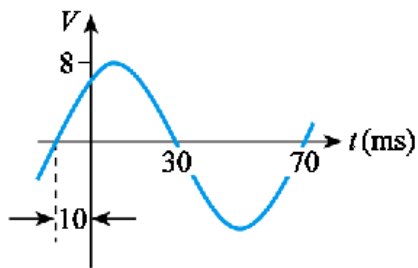
- a) 10 V b) 3 V c) 5 V d) 6 V

8. Calculate the output voltage V of the following circuit:



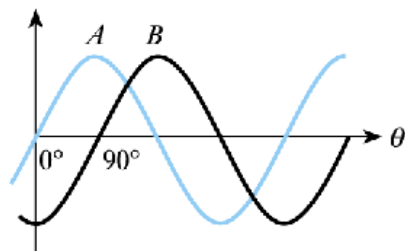
- a) 2 V b) 4 V c) 6 V d) 8 V

9. Which of the following equations describes the waveform shown here?



- a) $v = 8 \sin(90t - \pi/4)$ b) $v = 8 \sin(79t - \pi/4)$
c) $v = 8 \sin(79t + \pi/4)$ d) $v = 8 \sin(90t + \pi/4)$

10. In the following graph, waveform A lags waveform B by 90 degrees. True or false?



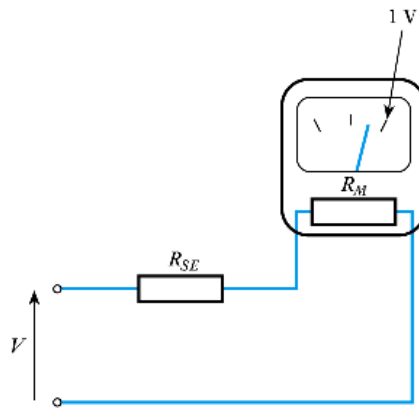
11. What is the average value of a sinusoidal voltage that has a peak value of 15 V?

- a) 0 V b) 9.56 V c) 10.6 V d) 19.1 V

12. A current of 5 A r.m.s is passed through a resistor of 5 Ω . What power will be dissipated in the resistor?

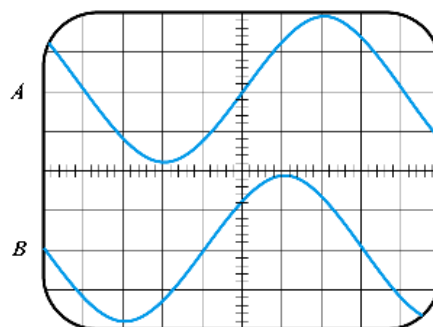
- a) 20 W b) 50 W c) 100 W d) 200 W

13. A moving-coil meter produces a full-scale deflection for a current of $100\text{ }\mu\text{A}$ and has a resistance of $500\text{ }\Omega$. Select a series resistor to turn this device into a voltmeter with an full scale deflection of 1 V .



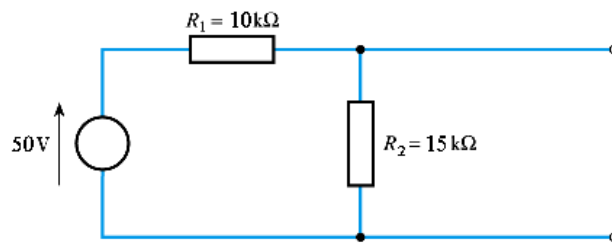
- a) 8.5 kΩ b) 9 kΩ c) 9.5 kΩ d) 10 kΩ

14. What is the relationship between the two waveforms shown here?



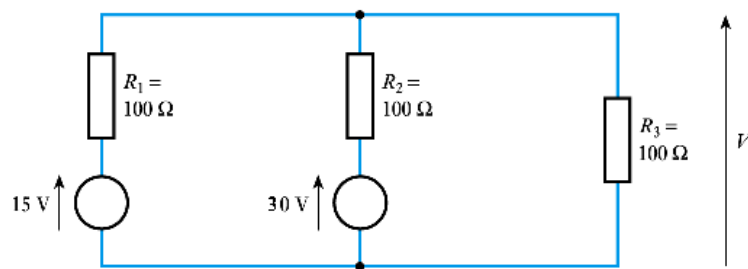
- a) A leads B by $\pi / 4$ b) A lags B by $\pi / 2$ c) A lags B by $\pi / 4$ d) A leads B by $\pi / 2$

18. Determine the short-circuit current of the following circuit.



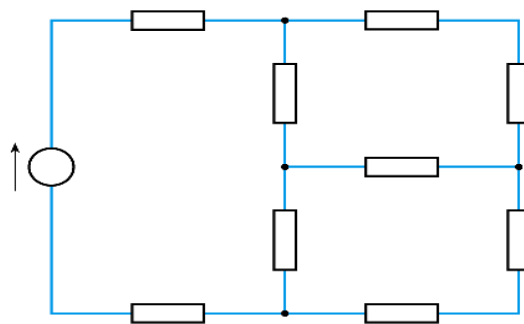
- a) 2 mA b) 3.33 mA c) 5 mA d) 6.67 mA

19. Use the principle of superposition to determine the output voltage V of the following circuit (you should be able to do this using mental arithmetic).



- a) 5 V b) 7.5 V c) 12 V d) 15 V

20. How many meshes are present within the following circuit?



- a) 1 b) 2 c) 3 d) 4