

### Special Problem 9-2.1

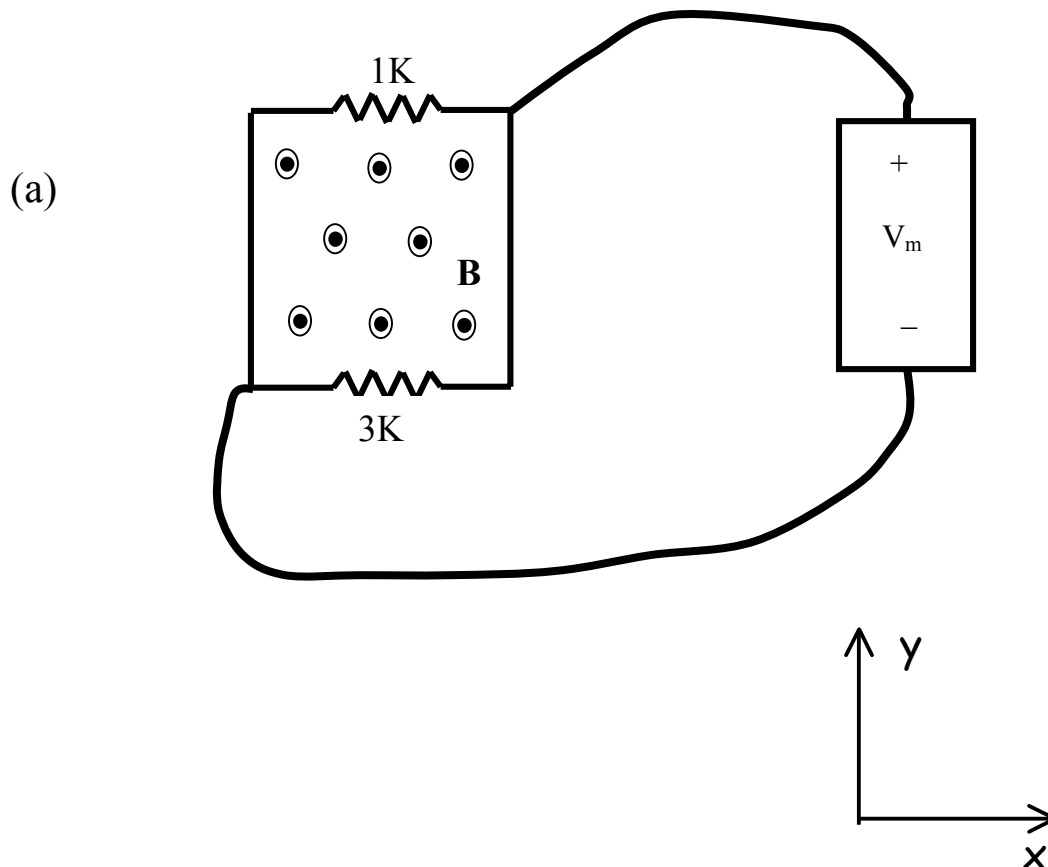
The square loop below has a surface area of  $2 \text{ m}^2$ . A time-varying magnetic flux density of:

$$\mathbf{B}(\bar{r}, t) = 2t \hat{a}_z \quad \left[ \frac{\text{W}}{\text{m}^2} \right]$$

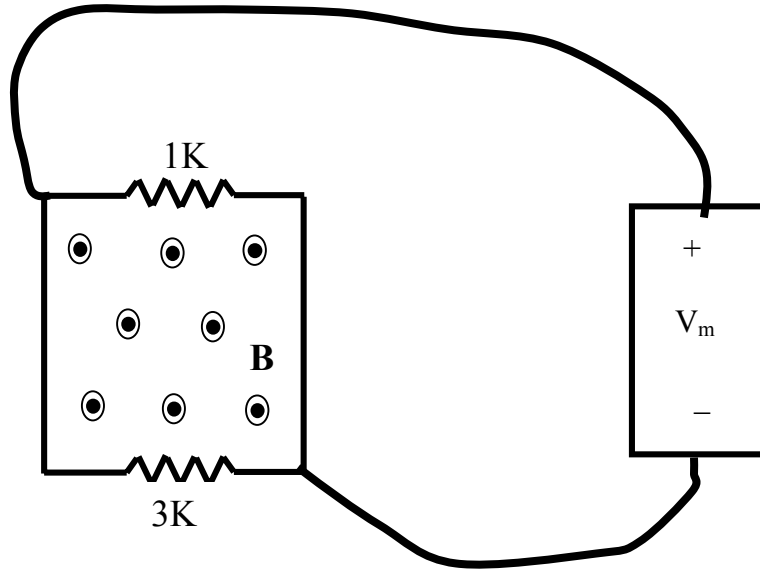
is present within the loop. Outside the loop, the magnetic flux density is zero.

A volt meter is used to measure the electric potential difference (in volts) between two points on the loop.

Three situations are described below. Determine the value  $V_m$  displayed by the volt meter for each of these three situations.



(b)



(c)

