Text edition 7 vs. 6

The ch 9 questions refer to edition 6 of the textbook. Here are the differences in questions for edition 8.

Question 2, 26, 39 and 42 are different and included below.

Question 9.18 in edition 6 is 9.19 in edition 7.

9.22 in 6 is 9.25 in 7.

9.27 in 6 is 9.30 in 7.

9.29 in 6 is 9.32 in 7.

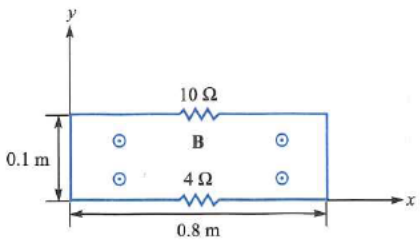
9.41 in 6 is 9.48 in 7.

9.2 The circuit in Figure 9.18 exists in a magnetic field $\mathbf{B} = 40\cos(30\pi t - 3y)\mathbf{a}_z$ mWb/m^2. Assume that the wires connecting the resistors have negligible resistances. Find the current in the circuit.

9.3 A circuit conducting loop lies in the xy-plane as shown in Figure 9.19. The loop has a radius of 0.2 m and resistance $\mathbf{R} = 4\ \Omega$. If $\mathbf{B} = 40\sin 10^4 t\mathbf{a}_z$ mWb/m^2, find the currrent.

9.4 Two conducting bars slide over two stationary rails, as illustrated in Figure 9.20. If $\mathbf{B} = 0.2\mathbf{a}_z$ Wb/m^2, determine the induced emf in the loop thus formed.

FIGURE 9.18 For Problem 9.2.



9.26 In a certain material, $\sigma = 0$, $\mu = \mu_o$, and $\varepsilon = 81\varepsilon_o$. The magnetic field intensity in this material is $\mathbf{H} = 10\cos(2\pi \times 10^9 t + \beta x)\mathbf{a}_z$ A/m. Determine $\mathbf{E}$ and β.

9.39 Express the following time-harmonic fields as phasors.

(a) $\mathbf{A} = 5\sin(2t + \pi/3)\mathbf{a}_x + 3\cos(2t + 30°)\mathbf{a}_y$

(b) $\mathbf{B} = \dfrac{100}{\rho}\sin(\omega t - 2\pi z)\mathbf{a}_\rho$

(c) $\mathbf{C} = \dfrac{\cos\theta}{r}\sin(\omega t - 3r)\mathbf{a}_\theta$

(d) $\mathbf{D} = 10\cos(k_1 x)\cos(\omega t - k_2 z)\mathbf{a}_y$

9.42 Let $\mathbf{H} = 40\cos(10^9 t - \beta z)\mathbf{a}_x$ A/m in a region for which $\sigma = 0$, $\mu = \mu_o$, $\varepsilon = 4\varepsilon_o$. (a) Express $\mathbf{H}$ in phase form. (b) Find $\mathbf{J}_d$.