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2)

a) $-\varepsilon D^2 u(x) - D_0 u(x) = 0$

$$\frac{-\varepsilon}{h^2}\left(u(x+h) - u(\bar{x}) - u(x) + u(x-h)\right) - \frac{1}{2h^2}\left(hu(x+h) - hu(x-h)\right) = 0$$

$$\frac{-1}{h^2}\left(\varepsilon u(x+h) - 2\varepsilon u(x) + \varepsilon u(x-h) + \frac{1}{2}hu(x+h) - \frac{1}{2}hu(x-h)\right) = 0$$

$$-\frac{1}{h^2}\left(\left(\varepsilon + \frac{h}{2}\right)u(x+h) + \left(-2\varepsilon\right)u(x) + \left(\varepsilon - \frac{h}{2}\right)u(x-h)\right) = 0$$

b) $-\varepsilon D^2 u(x) - D_+ u(x) = 0$

$$\frac{-\varepsilon}{h^2}\left[u(x+h) - 2u(x) + u(x-h)\right] - \frac{1}{h^2}\left[hu(x+h) - hu(x)\right] = 0$$

$$-\frac{1}{h^2}\left[\varepsilon u(x+h) - 2\varepsilon u(x) + \varepsilon u(x-h) + hu(x+h) - hu(x)\right] = 0.$$

$$-\frac{1}{h^2}\left[(h+\varepsilon)u(x+h) \quad (-2\varepsilon - h)u(x) + (\varepsilon)u(x-h)\right] = 0$$