

1.

(a)

From the generic form

$$V = V_0 J_0\left(\frac{x_{01}\rho}{a}\right) \frac{\sinh\left(\frac{x_{01}z}{a}\right)}{\sinh\left(\frac{x_{01}L}{a}\right)}$$

(b)

$$V = V_0 J_0\left(\frac{\rho}{a}\right) \exp\left(-\frac{z}{a}\right)$$

2.

(a)

(b)

(c)

(d)

(e)

(f)

(g)