I

$$-2xL^2 - 2rx(1-L)^2 + rL + rx - 2rLx$$

$$-2xL^2 - 2rx\left(1-2L+L^2\right) + rL + rx - 2rLx$$

$$-\cancel{2xL^2} - 2rx + \underbrace{\cancel{4rxL} - \cancel{2rxL^2} + rL + rx - \cancel{2rLx}}_{2rxL}$$

$$-2xL^2 - rx + 2rxL - 2rxL^2 + rL = 0$$

$$\left[-2L^2 - r + 2rL - 2rL^2\right]x + rL = 0$$

$$-\left[\cancel{2L^2} + r - 2rL + \cancel{2rL^2}\right]x + rL = 0$$

$$-\left[2(1+r)L^2 - 2rL + r\right]x + rL = 0$$

$$\boxed{x = \frac{rL}{2(1+r)L^2 - 2rL + r}}$$

$\text{II}$

$$1-x = \frac{2(1+r)L^2 - 2rL + r \quad - rL}{2(1+r)L^2 - 2rL + r}$$

$$\boxed{1-x = \frac{2(1+r)L^2 - 3rL + r}{2(1+r)L^2 - 2rL + r}}$$

$$\lambda_\perp(x) = \lambda_\parallel(L)$$

$$\frac{\cancel{2}x}{x^2 + r(1-x)^2} = \frac{\cancel{2}rL(1-L)}{\left[L^2 + r(1-L)^2\right]^2}$$

$$\frac{\cancel{rL}\left[2(1+r)L^2 - 2rL + r\right]}{r^2L^2 + r\left[2(1+r)L^2 - 3rL + r\right]^2} = \frac{\cancel{rL}(1-L)}{\left[L^2 + r(1-L)^2\right]^2}$$

111

$$\left[2(1+r)L^2-2rL+r\right]\left[L^2+r(1-L)^2\right]^2 +$$

$$+(L-1)\left\{r^2L^2+r\left[2(1+r)L^2-3rL+r\right]^2\right\}=0$$

---

$$(1-L)\left\{r^2L^2+r\left[2(1+r)L^2-3rL+r\right]^2\right\}$$

$$-\left[2(1+r)L^2-2rL+r\right]\left[L^2+r(1-L)^2\right]^2=0$$

---