ROZPIS:

Úpr. 3:

$$\varphi_1 = \varphi_2 + 2k\pi$$

$$-\frac{\omega}{c}(x_k - x_1) = \frac{\omega}{c}(x_k - x_2) + 2k\pi$$

$$-x_k + x_1 = x_k - x_2 + 2k\pi\frac{c}{\omega}$$

$$2x_k = x_1 + x_2 - 2k\pi\frac{c}{\omega}$$

$$x_k = \frac{x_1+x_2}{2} - \underbrace{k\frac{\pi c}{\omega}}_{k\frac{\pi c}{2\pi f}}$$

$$\underbrace{k\frac{\pi c}{2\pi f}}_{k\frac{\lambda}{2}}$$

$$x_k = \frac{x_1+x_2}{2} - k\frac{\lambda}{2}$$

$x = z + \bar{x}$

$$x - x_1 = z + \bar{x} - x_1 = z + \frac{x_1+x_2}{2} - x_1 = z + \frac{x_2-x_1}{2} = z + \delta_v$$

$x - x_2$ analogicky

tedy $\varphi_1 = -\frac{\omega}{c}(x - x_1) = -\frac{\omega}{c}(z + \delta_v)$

a $\varphi_2 = \frac{\omega}{c}(x - x_2) = +\frac{\omega}{c}(z - \delta_v)$

$$\varphi_1 = -\frac{\omega}{c}(\delta_v + z) = -\omega\frac{\delta_v}{c} - \frac{\omega}{c}z = -\omega t_s - \frac{2\pi}{\lambda}z$$

φ_2 analogicky

Úpr. 13:

$u(t,z) = A\sin(\omega t - k_1 z) + RA\sin(\omega t + k_1 z)$, ~~$u(t,0)$~~

$u(t,0) = A\sin\omega t + RA\sin\omega t$ $\qquad \boxed{u(t,0) = (1+R)u_1(t,0)}$

$u_1(t,z) = A\sin(\omega t - k_1 z)$, $u_1(t,0) = A\sin\omega t$

$\boxed{u_2(t,z)} = TA\sin(\omega t - k_2 z)$, $u_2(t,0) = TA\sin\omega t = \boxed{T u_1(t,0)}$

$u_2(t,0) = u(t,0) \Leftrightarrow T u_1(t,0) = (1+R)u_1(t,0) \Rightarrow \boxed{T = 1+R}$