Griffiths 9.2.

$\Delta F = T\sin\theta' - T\sin\theta$

$A\sin(kz)\cos(kvt)$

$\frac{d^2}{dz^2} f = -k^2 f, \qquad \frac{d^2}{dt^2} f = -k^2 v^2 f$

$$\boxed{\frac{d^2}{dz^2} f = \frac{1}{v^2} \frac{d^2}{dt^2} f.}$$

$$A\sin(kz)\cos(kvt) = A\sin(kz)\frac{1}{2}\left[\cos(kvt) + \cos(-kvt)\right]$$

$$= \boxed{\frac{A}{2}\sin(kz)\cos(kvt) + \frac{A}{2}\sin(kz)\cos(-kvt)}$$