

$$2a2) \quad v(x,t) = \sin(x+ct) + \cos(2x+2ct)$$

$$x: \quad F(u) = \sin(u) + \cos(2u) \quad F'(u) = \cos(u) - \sin(2u) \cdot 2$$

$$u = x+ct \quad u' = 1 \quad \cos(x+ct) - \sin(2x+2ct) \cdot 2$$

$$II: \quad F(u) = \cos(u) - \sin(2u) \cdot 2 \quad F'(u) = -\sin(u) - \cos(2u) \cdot 4$$

$$u = x+ct \quad u' = 1 \quad -\sin(x+ct) - \cos(2x+2ct) \cdot 4$$

$$t: \quad u' = c \quad \cos(x+ct) \cdot c - \sin(2x+2ct) \cdot 2c$$

$$F(u) = \cos(u) \cdot c - \sin(u) \cdot 2c \quad F'(u) = -\sin(u) \cdot c + \cos(u) \cdot 2c$$

$$u = x+ct \quad u' = c \quad -\sin(x+ct) \cdot c^2 + \cos(2x+2ct) \cdot 4c^2$$

$$c^2 (-\sin(x+ct) + \cos(2x+2ct) \cdot 4)$$