

LS3. Version B.

$$u_x + u = u_y$$

$$u(0, y) = 7e^{4y}$$

$$u(x, y) = X(x)Y(y)$$

$$X'(x)Y(y) + X(x)Y(y) = X(x)Y'(y)$$

$$\frac{X'(x)}{X(x)} + 1 = \frac{Y'(y)}{Y(y)} = \text{konstant} = \lambda$$

$$\lambda X(x) + (1 - \lambda)X(x) = 0$$

$$\lambda Y(y) - \lambda Y(y) = 0$$

$$X(x) = Ae^{(3-1)x}$$

$$Y(y) = Be^{4y}$$

$$u(x, y) = Ae^{(3-1)x} Be^{4y} = Ce^{(3-1)x + 4y}$$

$$7e^{4y} = u(0, y) = Ce^{4y}$$

$$C = 7$$

$$4 = 4$$

$$u(x, y) = 7e^{3x + 4y}$$