Exercise 4.1: the transpose of convolution in practice

using equation:

$$o = \lfloor \frac{(i + 2p - k)}{s} \rfloor + 1$$

with:

$$i = \text{input size},\ p = 1,\ k = 3$$

$$\text{height} = \lfloor \frac{\left(\lfloor \frac{64 - 1}{x_3} \rfloor + 1 \right) - 1}{x_7} \rfloor + 1 = 11$$

$$\text{width} = \lfloor \frac{\left(\lfloor \frac{48 - 1}{x_4} \rfloor + 1 \right) - 1}{x_8} \rfloor + 1 = 4$$

solving these equations gives following results:

$$x_3 = 2,\ x_7 = 3$$
$$x_3 = 3,\ x_7 = 2$$

$$x_4 = 2,\ x_8 = 6$$
$$x_4 = 2,\ x_8 = 7$$
$$x_4 = 3,\ x_8 = 4$$
$$x_4 = 3,\ x_8 = 5$$
$$x_4 = 4,\ x_8 = 3$$
$$x_4 = 5,\ x_8 = 3$$
$$x_4 = 6,\ x_8 = 2$$
$$x_4 = 7,\ x_8 = 2$$

for the remaining variables:

$$x_1 = 17,\ x_2 = x_5 \in \mathbb{N},\ x_6 = 11$$