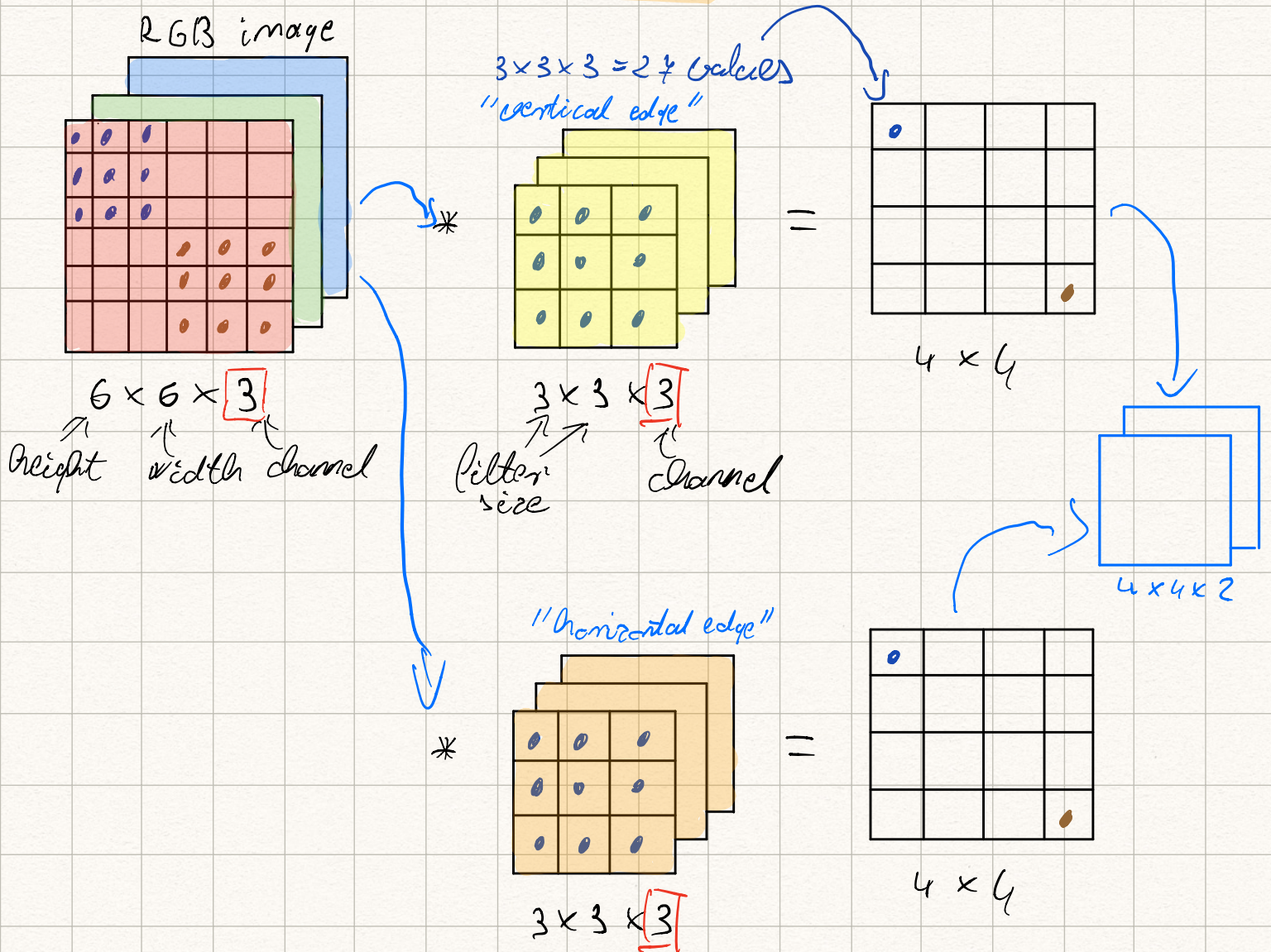


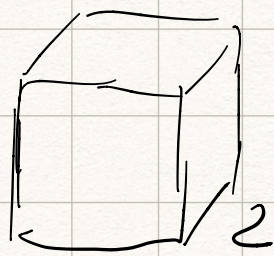
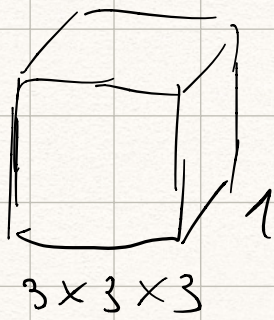
Convolutions over volume



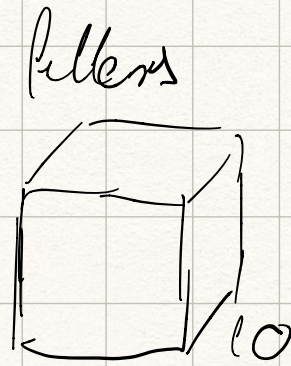
$$(n \times n \times n_c) * (f \times f \times n_c) \rightarrow \left[\frac{n+2f-f}{s} + 1 \right] \times \left[\frac{n+2f-f}{s} + 1 \right] \times n_c'$$

$$6 \times 6 \times 3 * 3 \times 3 \times 3 \rightarrow 4 \times 4 \times 2$$

one layer of a CNN

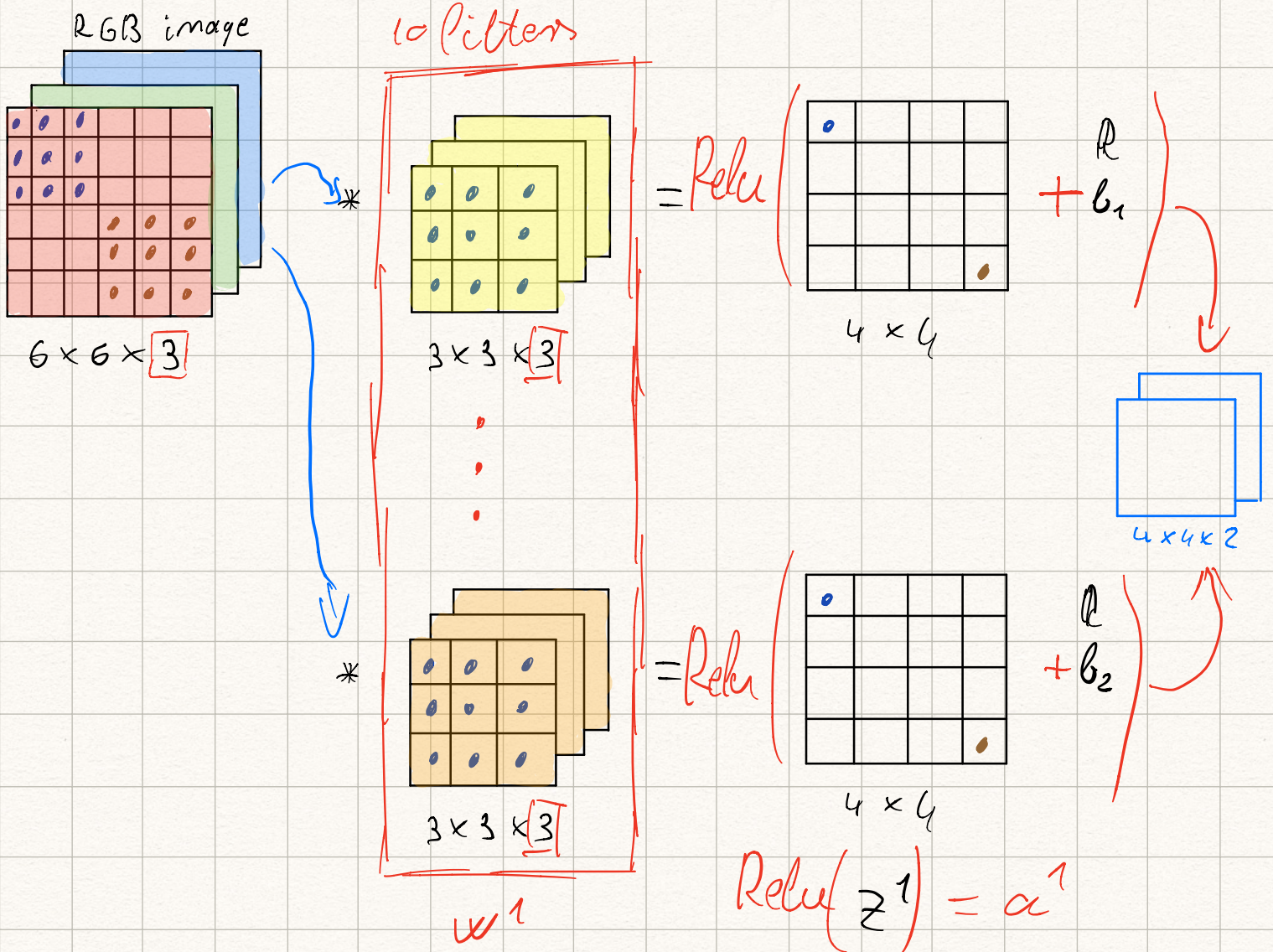


...



filters

$$27 \text{ params} + 1 \text{ bias} = 28 \Rightarrow 28 \cdot 10 = 280 \text{ parameters}$$



$$z^1 = w^1 \cdot a^0 + b^1 \Rightarrow a^1 = g(z^1)$$

convNet example

