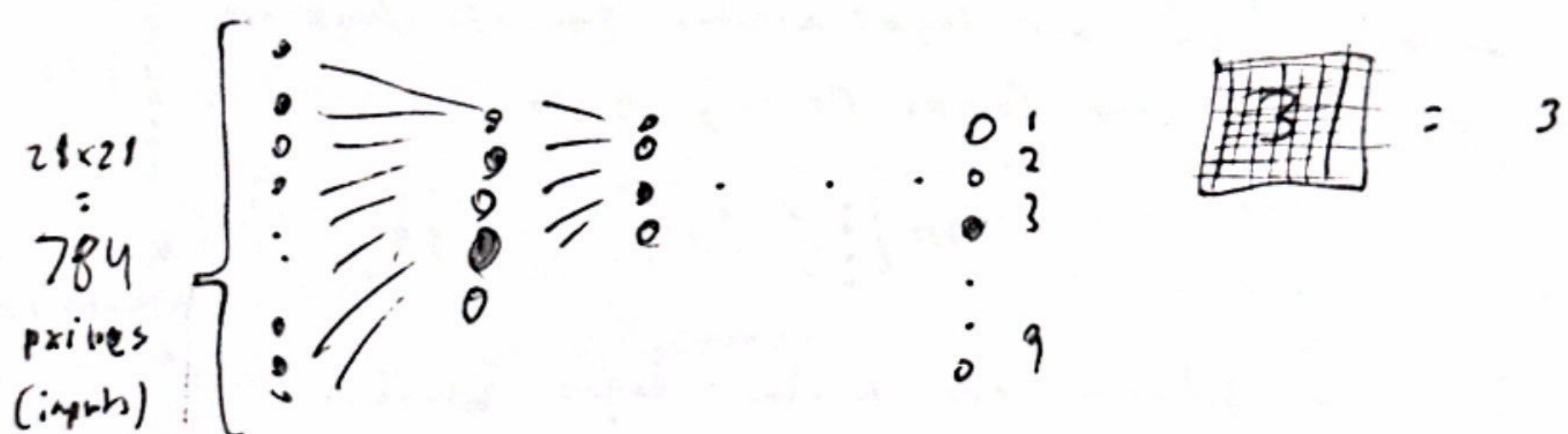


# Neural Networks (complete guide)

- inspired by brain as it knows all 3's even though written differently the brain knows so NN are trying to mimic human neurons.
- NN Ex for all Notes: image recognition
  - 28x28 grid of grayscale val (intensity of pixel black to white)
  - - - - -
  - NN are part of machine learning, since we cannot explicitly program what a 3 looks like as its not the same when someone writes it again it won't be the exact same so not exact pixels lighting up, we have to use ML to teach NN (computer) what a 3 is.



- Variants of NN (NOTE: we talk about plain Vanilla Neural Nets)!
  - Convolutional Neural Network (CNN) → good for img recognition
  - Long short-term memory Network (LSTM) → good for speech recognition
  - Recurrent Neural Network (RNN) → good for sequential data
    - ↳ GRU (Gated Recurrent Unit) type of RNN
  - Dense Neural Networks (fully connected NN); are NN where every neuron in one layer is connected to every neuron in the next layer
  - SNN (spiking neural networks) are a NN that mimic the way biological neurons communicate using discrete spikes over time to process info efficiently and temporally.