

Exer 2

Factor qubits as much as possible:

$$\equiv (|00\rangle - |01\rangle) \frac{1}{\sqrt{2}}$$

Sol:

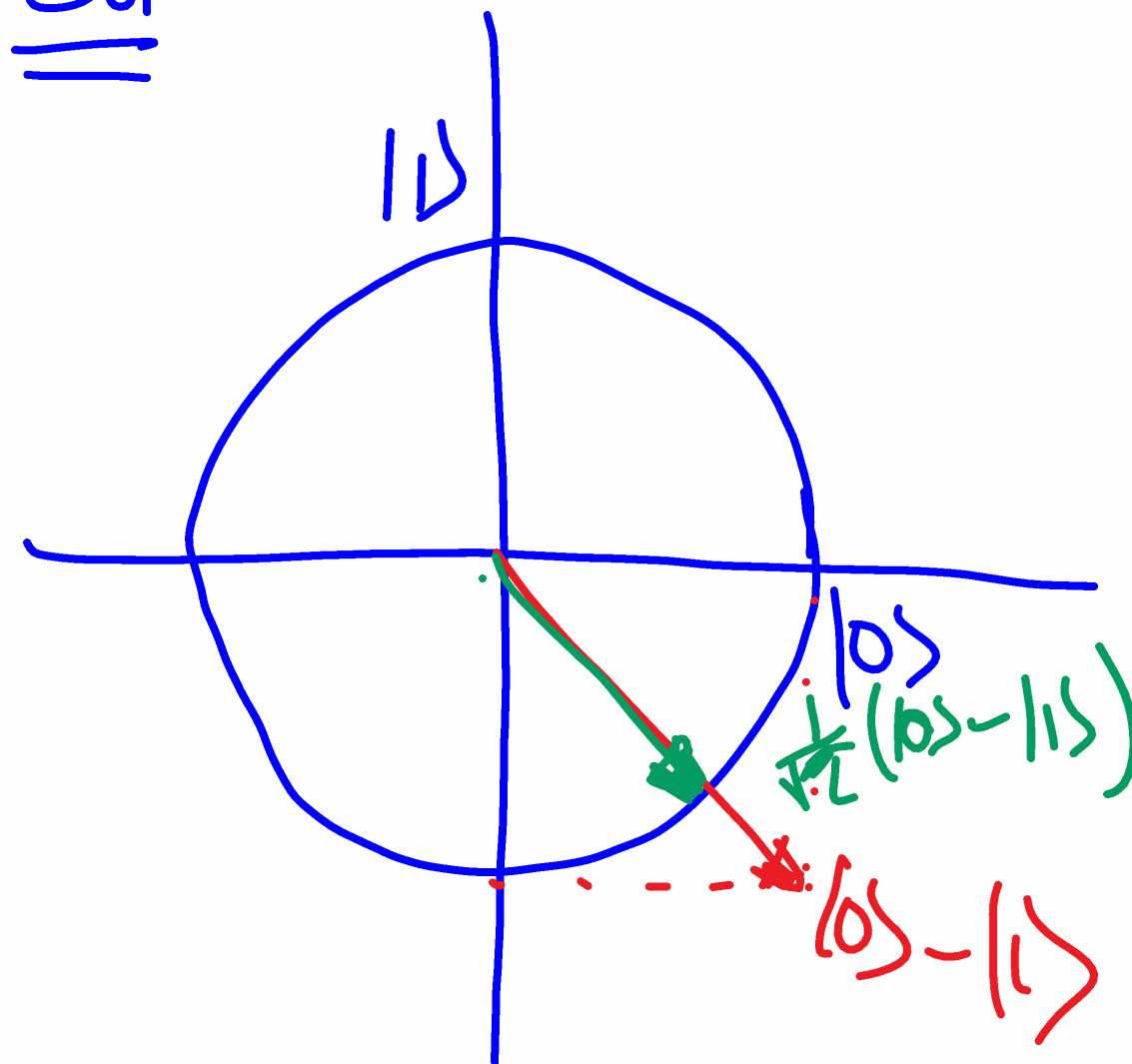
$$|0\rangle \left(\frac{|10\rangle - |11\rangle}{\sqrt{2}} \right) =$$
$$= |0\rangle |1\rangle \left(\frac{|0\rangle - |1\rangle}{\sqrt{2}} \right)$$

Thu Nov 8 2018

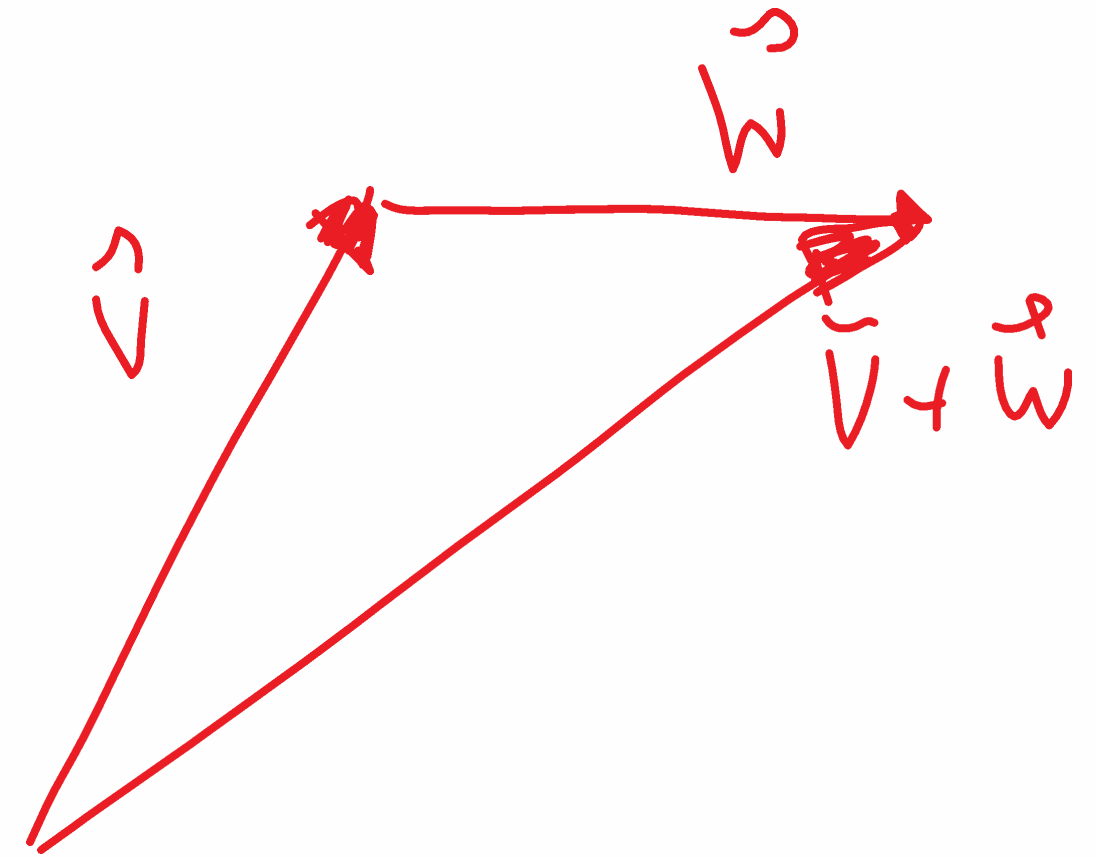
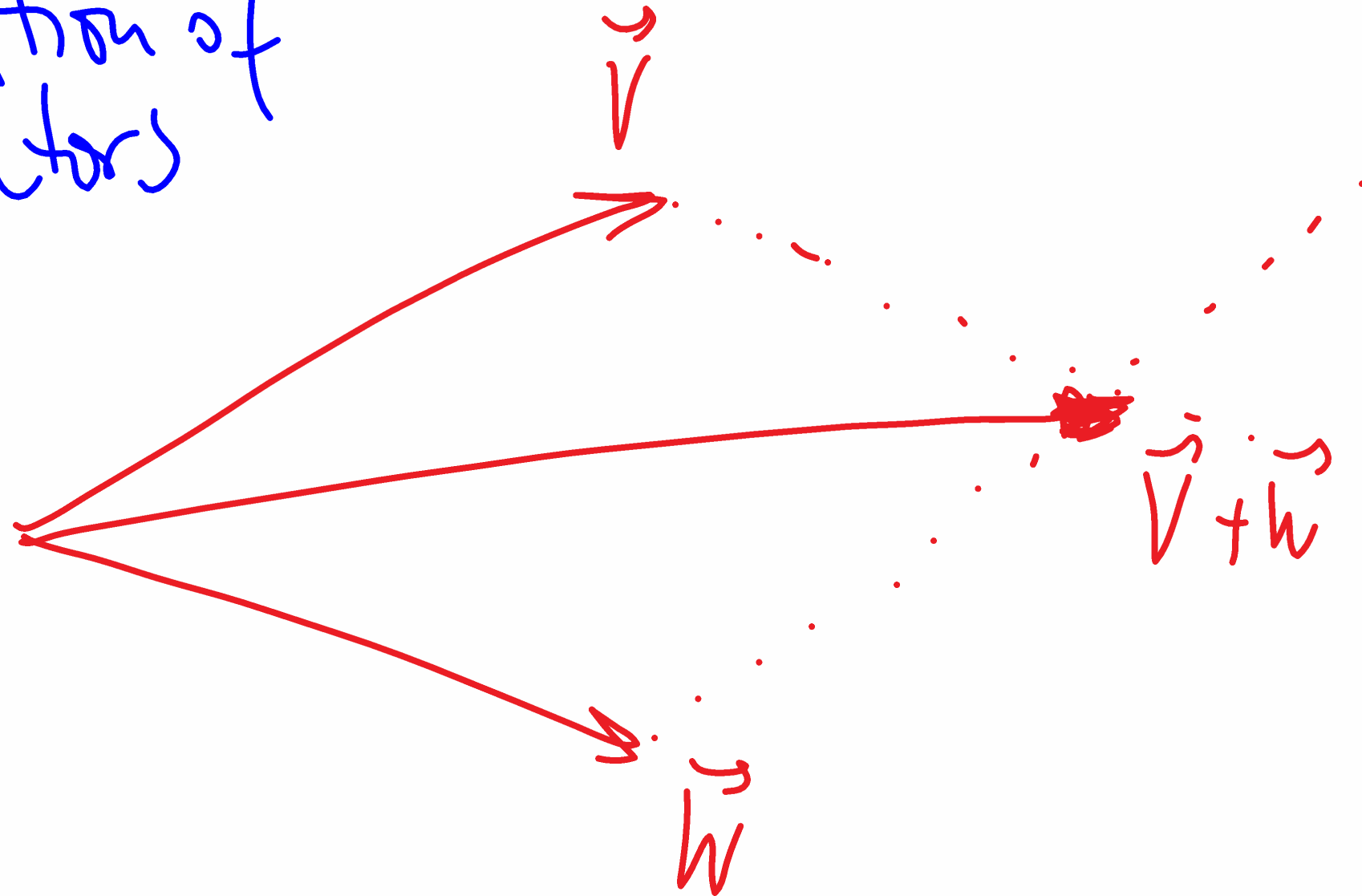
Draw a diagram representing a) $|0\rangle - |1\rangle$

b) $(|0\rangle - |1\rangle) \frac{1}{\sqrt{2}}$

Sol

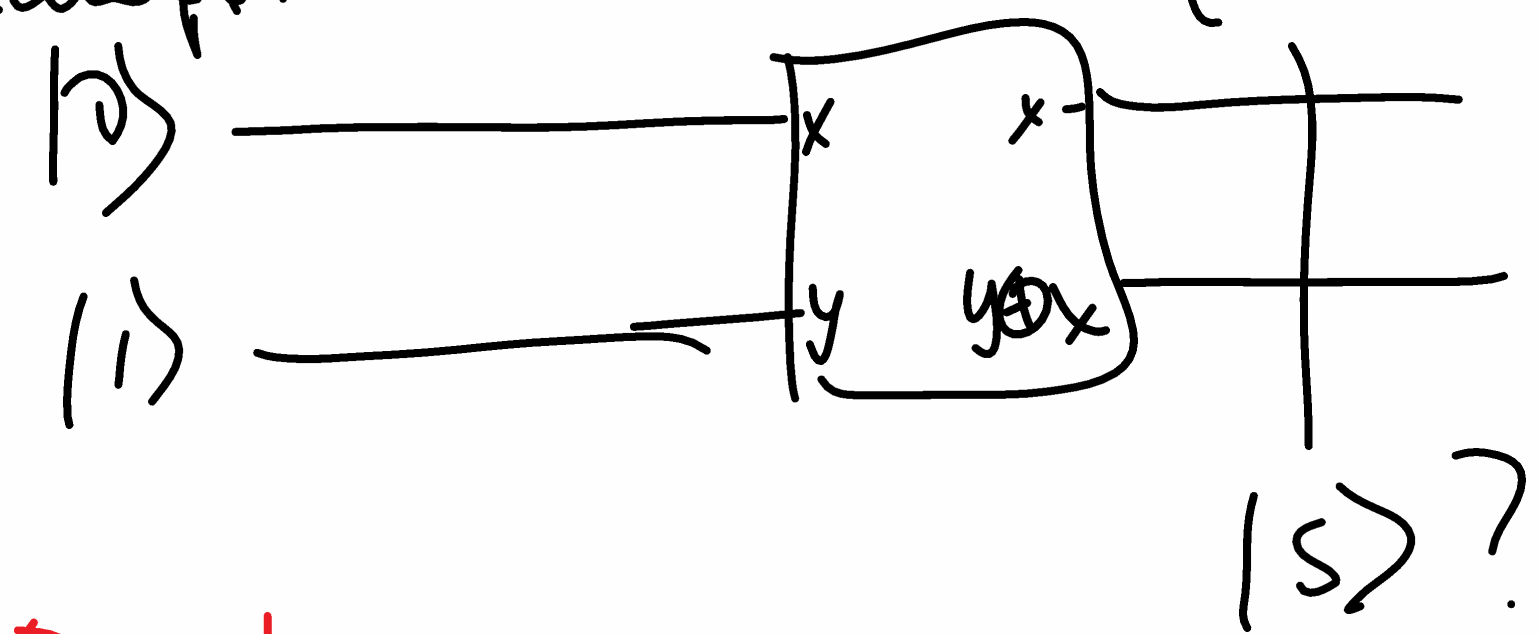


Addition of
vectors



(Review additional examples of yesterday)

Example 1



Akin to truth table

$$|s\rangle = \text{CNOT}_{12} |10\rangle = |10\rangle$$

' ' $|00\rangle = |00\rangle$

" $|01\rangle = |11\rangle$

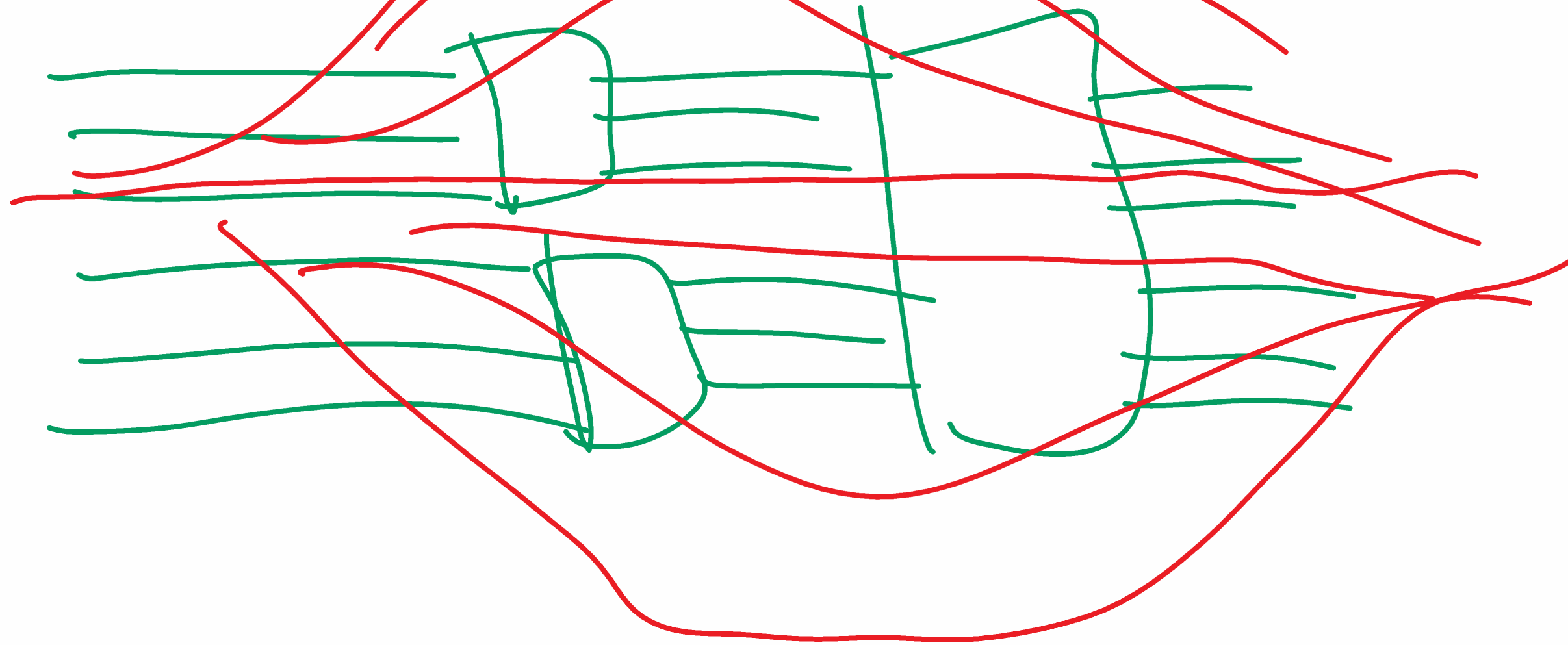
" $|11\rangle = |01\rangle$

RULE:

IF we want to know what a Quantum Gate does, it's enough to see what it does to each fundamental state of system

LN QUANTUM COMP. EXPLORES ALL CASES
IN ONE SINGLE RUN

For instance



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