Quantum Information course 2019
Third and final hand-in assignment
Hand-in deadline Friday May 24th *[1]

Exercise 5.4 (please hand in your solution to Peter Samuelsson)

Exercise 8.30 (please hand in your solution to Peter Samuelsson)
Important: In 8.30 in the book the notation and formulas are strange. The problem should instead be formulated as:

The T_2 phase coherence relaxation time is just the inverse exponential decay rate of the off-diagonal elements in the qubit density matrix, while T_1 is the inverse decay rate of the diagonal elements (see Equation 7.144)). Amplitude damping has *both* non-infinite T_1 and T_2 times. Show that for amplitude damping $T_1=T_2/2$. Also show that if amplitude and phase damping are *both* applied then $T_1 \geq T_2/2$.

[1] *If handed in too late you might have to solve and hand in additional problems