Problem 1

Show that e^{2x}, $\sin(2x)$ are linearly independent on $(-\infty, \infty)$.

Problem 2

Show that e^{-x}, xe^{-x} are linearly independent on $(-\infty, \infty)$.

Problem 3

Show that e^x, e^{2x}, e^{3x} are linearly independent on $(-\infty, \infty)$.