

**MATH 54 SPRING 2019: DISCUSSION 109/112 QUIZ#8**

GSI: CHRISTOPHER EUR, DATE: 4/16/2019

STUDENT NAME: \_\_\_\_\_

*Problem 1.* Solve for all functions  $f(x)$  such that

$$f'' - 2f' + 2f = e^x.$$

*Problem 2.* Let  $r, s$  be two distinct real numbers. Show that the two functions  $f(t) = e^{rt}, g(t) = e^{st}$  are linearly independent as elements of  $C^\infty(\mathbb{R})$ .