1. Suppose that grades on a midterm and a final have a correlation coefficient of .5 and both exams have an average score of 75 and a standard deviation of 10.

   a) If Claire's score on the midterm is 95, what would you predict her score on the final to be?

   b) If Tom scored 85 on the final, what would you guess that his score on the midterm was?

   c) If Emily scores below average on the midterm, what is the probability that she scores above average on the final?
   Rice 14.9.23

2. Suppose that W has normal(μ, $sigma^2$) distribution. Given that $W = w$, suppose that Z has normal($aw + b$, τ^2) distribution.

   a) The joint distribution of W and Z is bivariate normal. Find its parameters.

   b) What is the distribution of Z?

   c) What is the conditional distribution of W given $Z = z$?
   Pitman 6.5.9