2. Consider rolling a fair, six-sided die...
   a. Rolling a die is a seemingly random process for which there is a numerical outcome, namely the number on the die facing upwards.
   b. The set of outcomes, or sample space, is {1, 2, 3, 4, 5, 6}.
   c. From the lecture, two possible events are:
      i. A 2 is rolled (facing upwards)
      ii. An even number is rolled (facing upwards)
   d. From part b, the set probability associated with each of the six outcomes is 1/6th. This follows from the number of sides of the die, and the fact that the die is fair.
   e. The relative frequency of each outcome would approach 1/6th, the probability of each outcome. This follows from the Law of Large Numbers.

3. The integrity of twenty thin metal plates...
   a. 25%
   b. No, the 5 plates broke with a pressure of 50 lbs/ cm^2 or less, which implies that some plates broke with a pressure of 50 lbs/ cm^2, not less. To find the exact probability, the measurements of each plate would need to be known, or at least whether any given plate broke with 50 lbs/ cm^2 or less than 50 lbs/ cm^2 of pressure.
   c. The proportion of plates will approach its probability of breaking under 50 lbs/ cm^2 of pressure. This is the Law of Large Numbers.
   d.0.89 lbs / cm^2
   e. No, there is expected to be some sampling variation, but as the number of trials increase, the relative frequency will approach 0.89.

This question was phrased strangely ("under...or less"). I assume that was intentional.