

1. What value must  $c$  have so that

$$\begin{array}{rcccc} x : & 2 & 3 & 4 & 6 \\ f(x) : & c & 2c & 3c & 4c \end{array}$$

is a discrete probability distribution?

2. Consider the experiment of flipping a coin until a heads is obtained, and let  $X$  be the random variable that assigns to each outcome the number of the flip on which the heads is obtained. Sketch graphs of the probability distribution function  $f$  and the cumulative probability function  $F$ .

3. The clock in a classroom has hour, minute and second hands. It is completely analog, so the second hand moves smoothly around the clock. A bored student sitting in the classroom glances at the clock every so often, in a random manner. What is the probability that on a given glance the second hand will be
- (a) between the one and the two (going clockwise, for this question and all others) on the clock?
  - (b) between zero (12) and 4?
  - (c) between 4 and 12 (again, going clockwise)?
  - (d) on exactly 4?