More PDF and CDF Problems

There are many former exam questions to be found on the MER wiki on continuous probability. Take a look! [http://wiki.ubc.ca/Category:MER_Tag_Probability_density_function](http://wiki.ubc.ca/Category:MER_Tag_Probability_density_function)

1. Match the PDFs with their CDFs. The lower case labels are the PDFs and the uppercase labels are the CDFs.
2. For all the above estimate the median $x_{med}$ and determine which of the following is true for $\bar{x}$: $\bar{x} < x_{med}$, $\bar{x} > x_{med}$ or $\bar{x} = x_{med}$

3. For the following calculate the mean, median, variance and standard deviation.

   (a) The PDF is over $[0, 5]$ and is constant.
   (b) The PDF over $[0, 5]$ has the constant value of $\frac{1}{2}$ over $[0, 3]$ and another constant value over $[3, 5]$.
   (c) The PDF is linear over $[0, 5]$.
   (d) The CDF is linear over $[0, 5]$.
   (e) The CDF is linear over $[0, 2]$ but is constant over $[2, 3]$.

4. The continuous variable $x$ can equally take on any value in $[0, 2]$.

   (a) What is the PDF of $x$, the mean of $x$ and the median of $x$?
   (b) If $x$ is the side of a square what is the average area of a square?
   (c) If $x$ is the radius of a circle what is the average circumference?
   (d) If $x$ is the radius of a circle what is the average area?