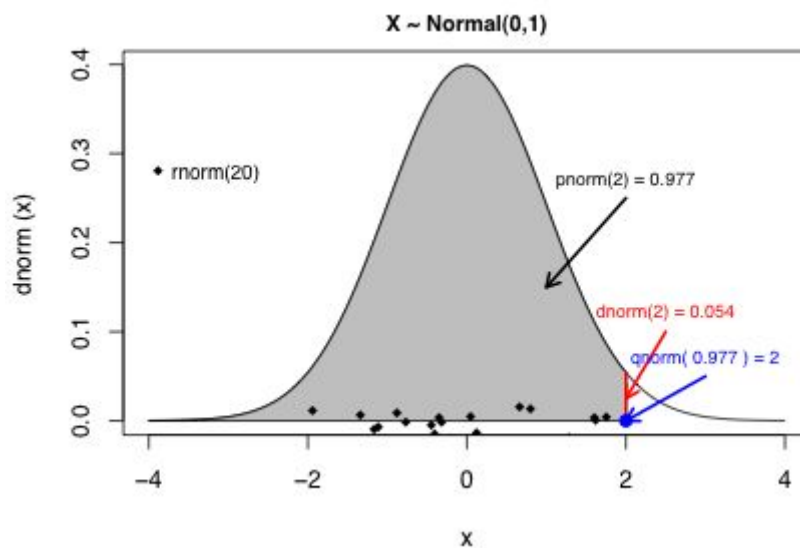# The R Probability Functions

The four probability functions for the normal distribution

- There are four basic probability functions for each probability distribution in R. Each functions begins with one of four prefixes: **d**, **p**, **q**, or **r** followed by a keyword that identifies the probability distribution. To understand what these functions do we'll focus on the four probability functions for the normal distribution: **dnorm**, **pnorm**, **qnorm**, and **rnorm**.
  - **dnorm** is the normal probability density function. Without any further arguments it returns the density of the standard normal distribution. If you plot this function over a range of *x*-values you obtain the usual bell-shaped curve of the normal distribution. The density values it returns are not probabilities. To obtain probabilities you would need to integrate this function over an interval. Alternatively if we consider a very small interval, say one of width Δx, and if $f(x)$ is a probability density function, then it is the case that

$$P\left(x < X < x + \Delta x\right) \approx f(x)\Delta x$$

  - **pnorm** is the cumulative distribution function for the normal distribution. By definition $\texttt{pnorm}(x) = P(X \leq x)$
  - **qnorm** is the quantile function of the standard normal distribution. If $\texttt{qnorm}(x) = k$ then k is the value such that $P(X \leq k) = x$.
  - **rnorm** generates random values from a standard normal distribution. The required argument is a number specifying the number of normal variates to produce.

http://www.unc.edu/courses/2007spring/enst/562/001/docs/lectures/lecture4.htm

distribution	function	type
binomial	binom	discrete
chi-squared	chisq	continuous
F	f	continuous
hypergeometric	hyper	discrete
normal	norm	continuous
Poisson	pois	discrete
Student's t	t	continuous
uniform	unif	continuous

http://ww2.coastal.edu/kingw/statistics/R-tutorials/prob.html