

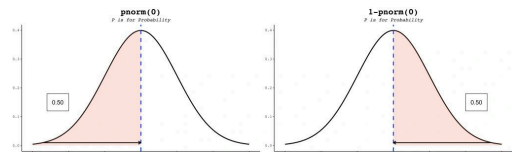
## PA 9 Task Card – Instrument Con

In this practice activity you and your partner will write a function to simulate the weight of various band instruments, with the goal of identifying whether a particular shipment of instruments has a “reasonable” weight.

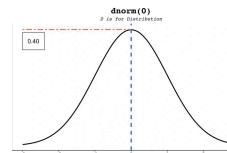
***This task is complex. It requires many different types of abilities. Everyone will be good at some of these abilities but nobody will be good at all of them. In order to produce the best product possible, you will need to use the skills of each member of your group.***

### Four Types of Calculations

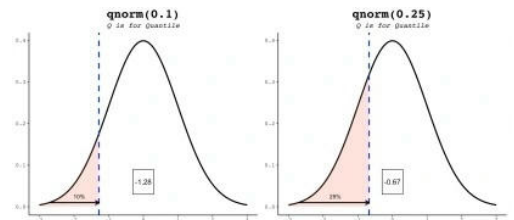
p – stands for probability (left tail area for a given value of  $x$ ).



d – stands for density (of the distribution at a given value of  $x$ ).



q – stands for quantile (for a given probability).



r – stands for random (for generating data).

### Distributions

- The Normal distribution functions end with **norm**.
  - `pnorm()`, `rnorm()`, `qnorm()`, and `dnorm()`
- The Uniform distribution functions end with **unif**.
  - `punif()`, `runif()`, `qunif()`, and `dunif()`
- The Chi-square distribution functions end with **chisq**.
  - `pchisq()`, `rchisq()`, `qchisq()`, and `dchisq()`