

Here are three references to the accepted notation $N[\text{mean}, \text{variance}]$. This is at odds with your textbook which uses $N[\text{mean}, \text{standard deviation}]$. Use the accepted notation and understand that the text is uniquely different.

Some Misconceptions about the Normal Distribution

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As part of a Six Sigma training course, practitioners are introduced to arguably the most important probability distribution in statistics: the *normal* distribution. Statistical procedures are often based upon the assumption that data collected for an analysis are drawn from a normal distribution.

A normal distribution is typically expressed in statistical shorthand as $N(\mu, \sigma^2)$. For example, a normal distribution with a mean of 12 and standard deviation of 5 is written $N(12, 25)$.¹

Properties

Some properties of the normal distribution:

1. If $X \sim N(\mu, \sigma^2)$ and a and b are **real numbers**, then $aX + b \sim N(a\mu + b, (a\sigma)^2)$ (see **expected**)
2. If $X \sim N(\mu_X, \sigma_X^2)$ and $Y \sim N(\mu_Y, \sigma_Y^2)$ are **independent normal random variables**, then:
 - Their sum is normally distributed with $U = X + Y \sim N(\mu_X + \mu_Y, \sigma_X^2 + \sigma_Y^2)$ (**proof**). Thus t

Normal distribution is denoted as $N(\mu, \sigma^2)$, sometimes the letter N is written in calligraphic font (typed variable X is distributed normally with mean μ and variance σ^2 , we write

$$X \sim \mathcal{N}(\mu, \sigma^2)$$

If you go to this site you can use the applet as you learn the z table.

