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Contives Random variable and the Normal Distribution

Two Characte

1. The probability that x assumes a value in any interval lies in the range 0 to 1

2. The total probability of all the (mutually exclusive) intervals within

$P(a \leq x \leq b)$

Normal probability Distribution

A normal probability distribution, when plotted, gives a bell-shaped curve such that:

1. The total area under the curve is 1.0

2. The curve is symmetric about the mean

3. The two tails of the curve extend indefinitely

Standard Normal Distribution

The normal distribution with $\mu = 0$ and $\sigma = 1$ is called the normal standard distribution

Z values or Z scores

The units marked on the horizontal axis of the standard normal curve are denoted by Z and are called the Z values. or Z scores. A specific value of Z gives the distance between the mean and the point represented by Z in terms of the standard deviation.

Colum header is the hundredth placed

Area to the left of $-1.54 = P(Z$

$P(Z > -.75) =$
$21.0 - .2266 Z$
$= .7734$

Deviation of the mean

Converting an x value to z value

$$z = \frac{x - \mu}{\sigma}$$

Finding an x value

The normal approximation to the Binomial distribution

1. The binomial

<u>the Binomial formula</u>

$$P(x) = {}_nC_x \, p^x q^{n-x}$$