# Linear Combinations of Normal Variables

## 1    Sums and Differences

$\mu_{x+y} = \mu_x + \mu_y$

$\mu_{x-y} = \mu_x - \mu_y$

$\sigma^2_{x+y} = \sigma^2_x + \sigma^2_y$

$\sigma^2_{x-y} = \sigma^2_x + \sigma^2_y$

## 2    Multiples

$\mu_{ax+by} = a\mu_x + b\mu_y$

$\mu_{ax-by} = a\mu_x - b\mu_y$

$\sigma^2_{ax+by} = a^2\sigma^2_x + b^2\sigma^2_x$

$\sigma^2_{ax-by} = a^2\sigma^2_x + b^2\sigma^2_x$