Chapter 13 / **Example 18**

Using the central limit theorem

The number of emergency calls per hour to a hospital between 9.30am and 10.30am each day follows a Poisson distribution with parameter 6.3. Use the central limit theorem to find the probability that in 40 days the mean of the number of calls between 9.30am and 10.30am is less than 5.4.

$\bar{X} \sim \mathrm{N}\left(6.3, \frac{6.3}{40}\right)$. Find $\mathrm{P}\left(\bar{X} < 5.4\right)$.

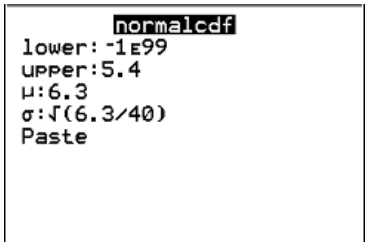
Press 2nd vars ([distr]) 2:normalcdf(.

Set the Lower bound as -1E99, the Upper Bound to 5.4, μ to 6.3 and σ to $\sqrt{\frac{6.3}{40}}$.

−1E99 means -1×10^{99} - a very small number. To enter E, press 2nd , [EE][format]

Enter the expression for σ directly.

Navigate to Paste and press enter.



Press enter.

$\mathrm{P}\left(\bar{X} < 5.4\right) = 0.117$.