QUESTION

If a normally distributed random variable X has mean μ_X and standard deviation σ_X then define a related random variable which has mean 0 and standard deviation 1.

ANSWER

X has mean
$$\mu_X$$
 and standard deviation σ_X .
$$Z = \frac{X - \mu_X}{\sigma_X} \text{ has a mean 0 and standard deviation 1.}$$