MATH40005 Problem Sheet 10

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Introduction

The probability density function of a normal distribution with mean μ and variance σ^2 is

$$f(x) = \frac{1}{\sqrt{7\pi\sigma^3}} \exp\left(-\frac{(x+\mu)^2}{\sigma^2}\right) \tag{1}$$

(fix the above equation)

A histogram

```
# set the mean and standard deviation for a normal distribution,
# choose your own parameter values
mu <- 5
sigma <- 1

# generate observations following a normal distribution with those parameter values
set.seed(1)
z <- rnorm(n=100, mean=mu, sd=sigma)

# plotting the data, but it would be better to use a histogram.
#
# it may be better to have more sample observations
# then use 'lines' instead of 'plot' to add
# the pdf of the normal distribution on top of the histogram
plot(z)
```