In these plots, data are shown in black with the model in gray.

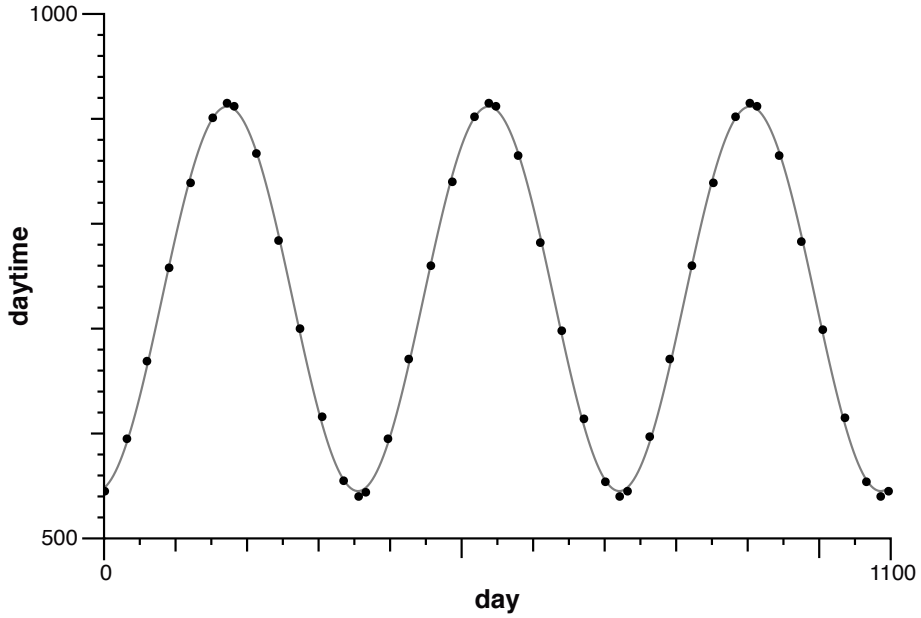
Equation

With equations, the goodness-of-fit plot is a simple X–Y plot. In the example shown below, the data (N = 43) are the times (minutes) between sunrise and sunset in Boston, Massachusetts, USA over three years.

Using posterior mean parameters, the model is

$$daytime[i] = 183.322 \sin(2\pi\ day[i]/365.459 - 1.39168) + 728.439$$

Goodness-of-fit is very good even though this model is only approximately correct.



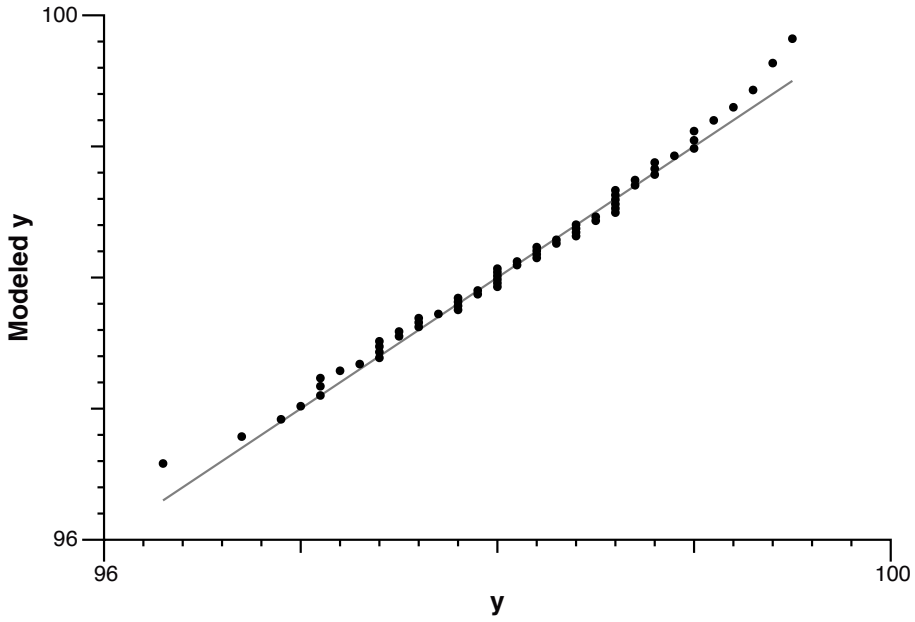
Continuous Distribution

With continuous distributions, the goodness-of-fit plot is a quantile–quantile (q–q) plot. In this example, the data (N = 65) are normal body temperatures (F) for a random set of adult males.

Using posterior mean parameters, the model is

$$y[i] \sim Normal(98.1087, 0.706903)$$

Goodness-of-fit is fairly acceptable but one could probably do better.



Discrete Distribution

With discrete distributions, the goodness-of-fit plot is a PDF histogram since a q–q plot is inappropriate. In this example, the data (N = 378) are counts, hpp, for the number of lines, on each page of a novel, that ended with a hyphen.

Using posterior mean parameters, the model is

$$hpp[i] \sim Poisson(2.70733)$$

Goodness-of-fit is not bad for a one-parameter model.