Code Fragments for Plotting in Series 7

Preparations: read in the data:

```
> library(boot)
> set.seed(11)
> dat <- read.table("http://stat.ethz.ch/Teaching/Datasets/parboot.dat")
> n <- nrow(dat)
```
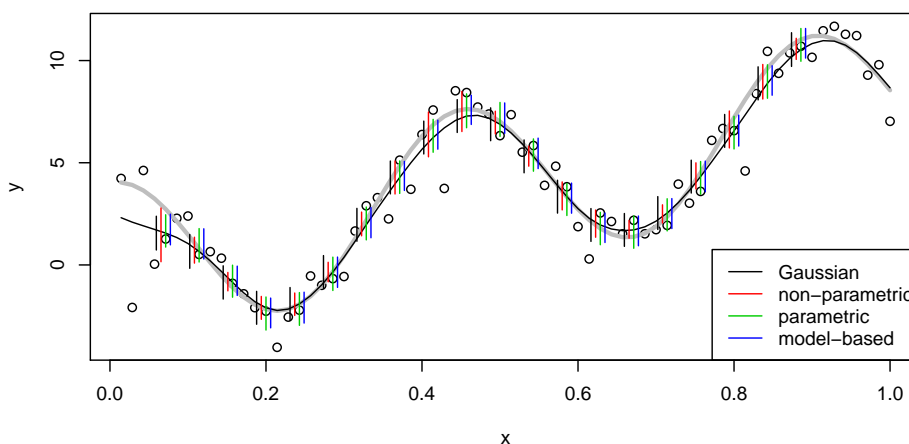
and fix the grid at which confidence intervals are to be calculated:

```
> x <- (1:70)/70
> ind.pre <- seq(5, 62, by=3)
> x.pre <- x[ind.pre]
```

Here comes your part: calculate the confidence intervals using the four different methods indicated. We assume that they are stored in four datasets, `cl.ci` for classical confidence intervals, `np.ci`, `pb.ci` and `mb.ci` for non-parametric, parametric and model-based bootstrap confidence intervals, all having columns `lower` and `upper` with lower and upper boundaries; every row corresponds to one prediction point.

The following sample code then plots the data, the true curve, the fitted curve and all confidence intervals (`sspl` is a smoothing spline estimator):

```
> delta <- 0.006
> par(mar = c(5, 4, 1, 2) + 0.1, cex = 0.8)
> plot(dat$x, dat$y, xlab = "x", ylab = "y")
> lines(dat$x, 8*dat$x + 4*cos(14*dat$x), col = "grey", lwd = 3)
> lines(dat$x, predict(sspl)$y)
> segments(x.pre - 2*delta, n.ci$lower, x.pre - 2*delta, n.ci$upper)
> segments(x.pre - delta, np.ci$lower, x.pre - delta, np.ci$upper, col = 2)
> segments(x.pre, pb.ci$lower, x.pre, pb.ci$upper, col = 3)
> segments(x.pre + delta, mb.ci$lower, x.pre + delta, mb.ci$upper, col = 4)
> legend("bottomright", c("Gaussian", "non-parametric", "parametric", "model-based"),
+        lty = 1, col = 1:4)
```


Now you can use similar code to plot everything shifted by the true y-values.