1. The survival times in weeks for 20 male rats that were exposed to a high level of radiation are

152	152	115	109	137	88	94	77	160	165
125	40	128	123	136	101	62	153	83	69

Data are from Lawless (1982) and are stored in the data frame Rat.

(a) Construct a quantile-quantile plot of the survival times. Based on the quantile-quantile plot, can normality be ruled out?

(b) Construct a 95% confidence interval for the average survival time for male rats exposed to high levels of radiation.

2. The European Union is developing new policies to promote research and development investment. A random sample of 15 countries' investments for the years 2002 and 2004 is taken and the results (in millions of euros) are stored in the data frame EURD and shown in the following table:

Country	2002	2003
1	5200.737	5177.444
2	959.362	1012.579
3	55.699	66.864
4	34527.000	34569.095
5	33.791	40.969
6	41.532	37.724
7	99.642	110.580
8	705.754	693.057
9	11.861	11.453
10	1029.010	1019.580
11	360.419	377.435
12	148.335	169.105
13	81.228	88.769
14	270.606	291.856
15	183.686	202.941

Compute a 95% confidence interval for the difference between 2002 and 2003 investment means

3. Those teams who win Formula 1 championships have pit crews who change tires as fast as possible. The data frame Formula1 and the following table contain the time (in seconds) that the pit crews of two different teams spent changing tires in 10 randomly selected races.

Race	1	2	3	4	5	6	7	8	9	10
Team1	5.613	6.130	5.422	5.947	5.514	5.322	5.690	5.243	5.920	5.859
Team2	5.934	5.335	5.826	4.821	5.664	5.292	5.257	6.245	5.981	5.197

Assuming that the times are normally distributed, compute a 95% confidence interval for the variance ratio σ_1^2/σ_2^2.