1. (a) True (p.547). (b) False (pp.552–53). (c) False (p.545).

   Of course, $P = 4.7\%$ gives you "statistical significance," and improves the odds of journal publication.

2. Question (i): see p.562.

3. False. You have to take the sample size into account too. For example, suppose the first investigator gets an average of 52, and the second one gets an average

   of 51. The first investigator gets $z = (52 - 50)/1 = 2$ and $P \approx 5\%$. The second investigator gets $z = (51 - 50)/0.33 = 3$ and $P \approx 0.3$ of 1%. (The P-values are two-sided.)

4. Yes: data snooping (p.547).

5. It is hard to make sense out of "statistical significance" here, because there is no reasonable chance model for the data. The inner planets do not form a sample, they are the inner planets; similarly for the outer ones. (See exercise 2 on pp.558–59; but see note 20 to chapter 29.)

6. There may be a big effect which is poorly estimated (pp.552–53). Also, there may be problems in setting up a box model here.

7. The concept of statistical significance does not apply very well, because the data are for the whole population, rather than a sample (p.556). The difference is practically significant. The center of population is shifting to the West, and that makes a lot of difference to the economy and to the political balance of the country.

8. (a) The question makes sense: the data are from probability samples.

   (b) No. You need to use the half-sample method (section 22.5).

   (c) Yes. Use the method of example 3 on p.505. The SE for the 2005 sample percentage is 0.22 of 1%, and the SE for 1985 is about the same. The SE for the difference is 0.31 of 1%, so $z = 9/0.31 \approx 29$, and $P \approx 0$. This difference is off the chance scale. Increasing participation by women in the labor force is of great practical importance too.

9. (a) The question makes sense, and the difference in attitudes is important. (This is a practical judgment, not a statistical one.)

   (b) The question makes sense, because the data are based on probability samples; but to answer it, you need to use the half-sample method (section 22.5).

   (c) Now this is like example 3 on p.505. The SE for the 2000 percentage is 1.4%; for 1970, the SE is 1.5%. The difference is 38%, and the SE for the difference is 2.1%, so $z = 38/2.1 \approx 18$ and $P \approx 0$.

10. $P \approx 5.9\%$ is pretty weak evidence; two-tailed, $P \approx 11.8\%$, which is worse. Even to get these P-values, some data-snooping was needed. The argument is not good.

    Comment. There were also serious problems with the model; see note 38 to chapter 29.

11. The question makes sense, but cannot be answered with the information given: you observe two correlated responses for each subject (p.517).