1. Give examples of three physical systems that would be expected to exhibit statistical fluctuations.
2. Answer these questions:
   * (a) If a coin is flipped 1,000,000 times, how many heads are expected (average value)?
   * (b) What is the expected fluctuation (standard deviation) about this average?
   * (c) How accurate is the prediction?
3. Consider these values of length (in meters) for the height of a flat-topped building:

|  |  |  |
| --- | --- | --- |
| 27.9 | 27.6 | 27.8 |
| 27.8 | 27.7 | 33.2 |
| 27.8 |  |  |

Calculate the average and the standard deviation.

1. Which of the following is biggest?
   * (a) 1015 or 10–27
   * (b) 1018 or 1021
   * (c) 10–7 or 10–12