

BIAS IN SAMPLING In order to draw accurate conclusions about a population from a sample, you should select an *unbiased sample*. An **unbiased sample** is representative of the population you want information about. A sample that overrepresents or underrepresents part of the population is a **biased sample**.

EXAMPLE 2 Identify a biased sample

CONCERT ATTENDANCE The manager of a concert hall wants to know how often people in the community attend concerts. The manager asks 50 people standing in line for a rock concert how many concerts per year they attend. Tell whether the sample is *biased* or *unbiased*. Explain your reasoning.

Solution

The sample is biased because people standing in line for a rock concert are more likely to attend concerts than people in general.

CHOOSING UNBIASED SAMPLES Although there are many ways of sampling a population, a random sample is preferred because it is most likely to be representative of the population.

EXAMPLE 3 Choose an unbiased sample

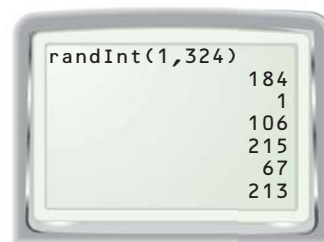
SENIOR CLASS PROM You are a member of the prom committee. You want to poll members of the senior class to find out where they want to hold the prom. There are 324 students in the senior class. Describe a method for selecting a random sample of 40 seniors to poll.

Solution

STEP 1 **Make** a list of all 324 seniors. Assign each senior a different integer from 1 to 324.

STEP 2 **Generate** 40 unique random integers from 1 to 324 using the *randInt* feature of a graphing calculator. The screen at the right shows six such random integers.

If while generating the integers you obtain a duplicate, discard it and generate a new, unique integer as a replacement.



STEP 3 **Choose** the 40 students that correspond to the 40 integers you generated in Step 2.



GUIDED PRACTICE for Examples 1, 2, and 3

- SCHOOL WEBSITE** A computer science teacher wants to know if students would like the morning announcements posted on the school's website. He surveys students in one of his computer science classes. Identify the type of sample described, and tell whether the sample is biased.
- WHAT IF?** In Example 3, what is another method you could use to generate a random sample of 40 students?