

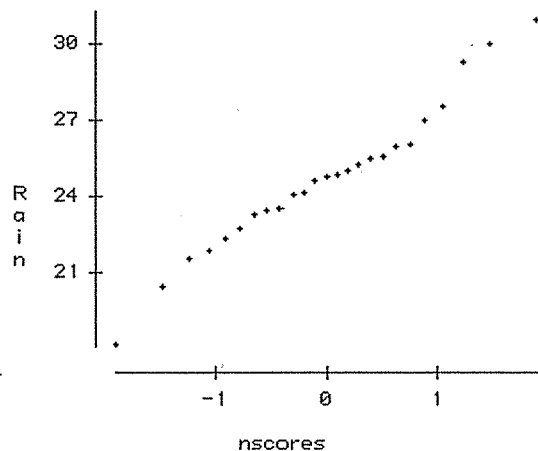
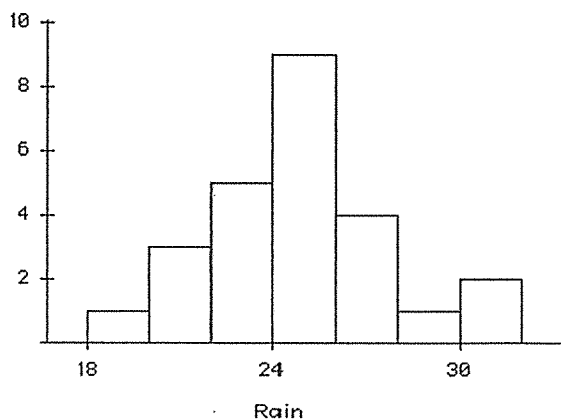
**Goal: Determine if a sample comes from a normal distribution.**

- 1) If selecting samples of size  $n \leq 30$  from a population, what requirement, if any, must be satisfied in order to assume that the distribution of the sample means has a normal distribution?
- 2) What are the ways to determine if a sample comes from a normal population.

Examine the given data set and determine whether the requirement of a normal distribution is satisfied. Assume that the requirement for a normal distribution is loose in the sense that the population distribution need not be exactly normal, but it must have a distribution which is basically symmetric with only one mode. Explain why you do or do not think that the requirement is satisfied.

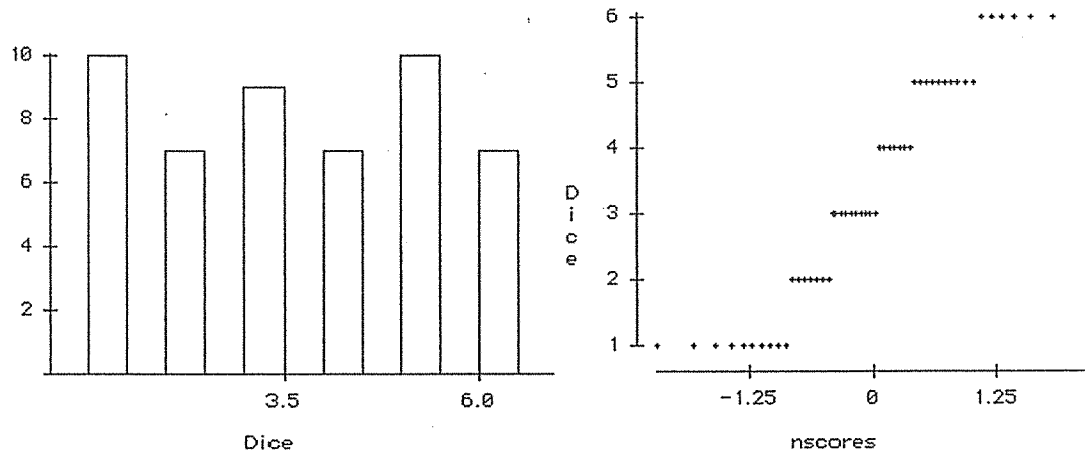
- 3) The amount of rainfall (in inches) in 25 consecutive years in a certain city.

20.4 25.1 22.8 27.0 23.5  
 24.2 26.0 25.6 23.3 24.1  
 21.9 27.6 24.7 25.3 21.6  
 31.0 23.6 26.1 25.5 24.8  
 18.1 22.4 24.9 30.0 29.3



4) The numbers obtained on 50 rolls of a die.

1 5 5 3 6 4 5 6 3 4  
 2 5 3 5 4 2 1 4 3 1  
 6 1 2 6 1 2 5 3 3 4  
 4 1 3 1 6 2 2 5 5 3  
 3 5 1 6 2 1 1 4 6 5



5) The ages of 30 students selected randomly from one college are as follows. Graph a histogram and a normal probability plot to help determine if this data comes from a normal population.

21 23 20 24 20  
 19 20 19 22 32  
 20 24 26 21 37  
 23 18 34 25 30  
 22 24 23 19 28  
 20 29 21 35 25  
 20 21 28 22 32