

Unit 1 Progress Check: FRQ

1. Show all your work. Indicate clearly the methods you use, because you will be scored on the correctness of your methods as well as on the accuracy and completeness of your results and explanations.

Age (years)	Frequency
$20 \leq x < 30$	160
$30 \leq x < 40$	130
$40 \leq x < 50$	100
$50 \leq x < 60$	115
$60 \leq x < 70$	125
$70 \leq x < 80$	135

The manager of a vacation resort believes that the ages of adult visitors to the resort can be modeled by a normal distribution. The manager surveyed a random sample of 765 visitors and recorded their age. A summary of the responses is shown in the frequency table, where x represents the age of the visitor.

- (a) Construct a histogram of the distribution of ages.
- (b) Write a few sentences to describe the distribution of ages of the adult visitors to the resort.
- (c) Does the histogram provide convincing evidence that the surveyed ages come from a normal distribution? Explain your answer.
2. Show all your work. Indicate clearly the methods you use, because you will be scored on the correctness of your methods as well as on the accuracy and completeness of your results and explanations.

A certain type of bird lives in two regions of a state. The distribution of weight for birds of this type in the northern region is approximately normal with mean 10 ounces and standard deviation 3 ounces. The distribution of weight for birds of this type in the southern region is approximately normal with mean 16 ounces and standard deviation 2.5 ounces.

- (a) Calculate the z -scores for a weight of 13 ounces for a bird living in the northern region and for a weight of 13 ounces for a bird living in the southern region.
- (b) Is it more likely that a bird of this type with a weight greater than 13 ounces lives in the northern region or the southern region? Justify your answer.