In Exercises 29–32, find the **mean** *of the data summarized in the given frequency distribution. Also, compare the* **computed means** *to the* **actual means** *obtained by using the original list of data values, which are as follows: (Exercise 29) 35.9 years; (Exercise 30) 44.1 years; (Exercise 31) 84.4; (Exercise 32) 15.0 years.*

29.

Age of Best Actress When Oscar Was Won	Frequency
20–29	27
30–39	34
40–49	13
50–59	2
60–69	4
70–79	1
80–89	1

30.

Age of Best Actor When Oscar Was Won	Frequency
20–29	1
30–39	26
40–49	35
50–59	13
60–69	6
70–79	1

31.

Verbal IQ Score of Subject Exposed to Lead	Frequency
50–59	4
60–69	10
70–79	25
80–89	43
90–99	26
100–109	8
110–119	3
120–129	2

32.

Years President Lived After First Inauguration	Frequency
0–4	8
5–9	2
10–14	5
15–19	7
20–24	4
25–29	6
30–34	0
35–39	1

3-2 Beyond the Basics

33. Degrees of Freedom Carbon monoxide is measured in San Francisco on five different days, and the mean of those five values is 0.62 parts per million. Four of the values (in parts per million) are 0.3, 0.4, 1.1, and 0.7. (The data are from the California Environmental Protection Agency.)

a. Find the missing value.

b. We need to create a list of n values that have a specific known mean. We are free to select any values we desire for some of the n values. How many of the n values can be freely assigned before the remaining values are determined? (The result is referred to as the *number of degrees of freedom*.)

34. Censored Data Data Set 12 in Appendix B lists the numbers of years that U.S. presidents lived after their first inauguration. As of this writing, five of the presidents are still alive and after their first inauguration they have lived 33 years, 21 years, 17 years, 9 years, and 1 year so far. We might use the values of 33+, 21+, 17+, 9+, and 1+, where the plus signs indicate that the actual value is equal to or greater than the current value. (These values were said to be *censored* at the time that this list was compiled.) If you use the values in Data Set 12 and ignore the presidents who are still alive, what is the mean? If you use the values given