Interpret Median

1. What is the median age for the following data set representing the ages of students requesting tickets for a summer band concert? Explain your reasoning.

$$13 \quad 14 \quad 15 \quad 15 \quad 16 \quad 16 \quad 17 \quad 18 \quad 18$$

2. What is the median number of diseased trees from a data set representing the numbers of diseased trees on each of 12 city blocks? Explain your reasoning.

$$11 \quad 3 \quad 3 \quad 4 \quad 6 \quad 12 \quad 9 \quad 3 \quad 8 \quad 8 \quad 8 \quad 1$$

3. Describe how you would find the median for a set of data that has 35 values. How would this be different if there were 36 values?

Interpret Median

1. What is the median age for the following data set representing the ages of students requesting tickets for a summer band concert? Explain your reasoning.

$$13 \quad 14 \quad 15 \quad 15 \quad 16 \quad 16 \quad 17 \quad 18 \quad 18$$

The median is the 5^{th} value in the ordered list, or 16 years, as there are 4 values less than 16 and 4 values greater than or equal to 16 (excluding the 5^{th} value).

2. What is the median number of diseased trees from a data set representing the numbers of diseased trees on each of 12 city blocks? Explain your reasoning.

$$11 \quad 3 \quad 3 \quad 4 \quad 6 \quad 12 \quad 9 \quad 3 \quad 8 \quad 8 \quad 8 \quad 1$$

To find the median, the values first need to be ordered:
$1 \quad 3 \quad 3 \quad 3 \quad 4 \quad 6 \quad 8 \quad 8 \quad 8 \quad 9 \quad 11 \quad 12.$

Because there are an even number of data values, the median would be the mean of the 6^{th} and 7^{th} values: $\frac{6+8}{2}$, or 7 diseased trees.

3. Describe how you would find the median for a set of data that has 35 values. How would this be different if there were 36 values?

Answers will vary. First, you would order the data from least to greatest. Because there are 35 values, you would look for the 18^{th} value from the top or bottom in the ordered list. This would be the median with 17 values above and 17 values below. If the set had 36 values, you would find the average of the middle two data values, which would be the average of the 18^{th} and the 19^{th} values in the ordered list.