

**1. Problem**

A continuous random variable  $X$  was measured 9 times. The sorted data are shown below, along with each datum's index.

| $i$ | $x$     |
|-----|---------|
| 1   | 101.048 |
| 2   | 103.645 |
| 3   | 117.202 |
| 4   | 129.719 |
| 5   | 135.197 |
| 6   | 143.044 |
| 7   | 150.697 |
| 8   | 162.738 |
| 9   | 167.856 |

The total of the measurements is 1211.146.

- Determine the percentile rank of the value 150.697. In other words, determine what percent of data are less than or equal to 150.697.
- Determine the datum corresponding to a percentile rank of 0.889. In other words, determine  $x$  such that 88.9% of the data are less than or equal to  $x$ .
- Determine the mean of the measurements.
- Determine the median of the measurements.

**2. Problem**

A continuous random variable  $X$  was measured 72 times. The sorted data are shown below.

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|         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 80.239  | 80.933  | 82.252  | 83.159  | 87.818  | 95.257  | 97.171  | 97.850  | 99.502  |
| 101.737 | 102.731 | 105.129 | 105.346 | 105.634 | 106.979 | 108.847 | 109.585 | 109.871 |
| 114.086 | 116.272 | 116.718 | 117.063 | 117.650 | 118.961 | 120.393 | 121.780 | 121.961 |
| 122.434 | 122.521 | 123.650 | 123.976 | 124.597 | 126.783 | 127.449 | 127.509 | 128.164 |
| 128.330 | 129.699 | 130.181 | 131.505 | 131.805 | 131.913 | 132.336 | 133.020 | 133.571 |
| 134.494 | 134.578 | 135.426 | 135.884 | 137.458 | 138.390 | 138.573 | 138.781 | 140.116 |
| 141.013 | 141.424 | 141.560 | 142.178 | 142.305 | 143.214 | 143.228 | 144.350 | 144.895 |
| 145.479 | 146.133 | 146.408 | 147.068 | 147.352 | 147.839 | 148.004 | 148.757 | 148.952 |

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The total of the measurements is 8978.226.

- (a) Determine the percentile rank of the value 80.239. In other words, determine what percent of data are less than or equal to 80.239.
- (b) Determine the datum corresponding to a percentile rank of 0.444. In other words, determine  $x$  such that 44.4% of the data are less than or equal to  $x$ .
- (c) Determine the mean of the measurements.
- (d) Determine the median of the measurements.