10.1 Measuring Center

The **median** is the midpoint of a distribution, the number such that about half the observations are smaller and about half are larger.

To find the median, arrange the data values from smallest to largest.

*If the number of data values is **ODD**, the median is the middle value in the ordered list.

If the number of data valued is **EVEN, the median is the average of the two middle values in the ordered list.

The **mean** is the sum of the data divided by the number of items in the data set.

The **mode** is the number (or numbers) that occur most often.

Statistics is the study of collecting, organizing, and interpreting information, or data. Mean, median, and mode are called **measures of center** because they are statistics that describe the center of a set of data.

Example: Find the mean, median, and mode of the data.

{53, 27, 18, 14, 12, 27, 13, 16, 18, 36}

12 13 14 16 18 18 27 27 36 53

mean: $\frac{12+13+14+16+18+18+27+27+36+53}{10} = \frac{234}{10} = 23.4$

median: $\frac{18+18}{2} = \frac{36}{2} = 18$

mode: 18 & 27

Example: Find the mean, median, and mode of the data.

{62, 48, 37, 45, 50, 63, 48, 54, 48, 52, 40, 51}

37 40 45 48 48 48 50 51 52 54 62 63

mean: $\frac{37+40+45+48+48+48+50+51+52+54+62+63}{12} = \frac{600}{12} = 50$

median: $\frac{48+50}{2} = \frac{98}{2} = 49$

mode: 48

Example: Find the mean, median, and mode of the data.

{601, 461, 436, 435, 431, 423, 404, 380, 377, 373}

373 377 380 404 423 431 435 436 461 601

Mean: $\frac{373+377+380+404+423+431+435+436+461+601}{10} = \frac{4321}{10} = 432.1$

Median: $\frac{423+431}{2} = \frac{854}{2} = 427$

Mode: no mode

Example: Find the mean, median, and mode of the data.

{~~250~~, ~~200~~, ~~320~~, ~~235~~, ~~265~~, ~~200~~}

200 200 235 250 265 320

Mean: $\frac{200+200+235+250+265+320}{6} = \frac{1470}{6} = 245$

Median: $\frac{235+250}{2} = \frac{485}{2} = 242.5$

Mode: 200