# 7.3 The Effects of Outliers on Averages

An OUTLIER is a number that is significantly different in a set of data.

**example**: Here are the heights of 9 grade 7 students (in cm): 160, 172, 180, 179, 184, 169, 178, 19, 180,

a) Calculate the mean, median and mode.

$$\text{Mean} = \frac{160+172+180+179+184+169+178+19+180}{9}$$

$$= \frac{1421}{9}$$

$$= 157.\overline{8}$$

Arrange: 19, 160, 169, 172, (178), 179, 180, 180, 184

Median is 178

Mode is 180

b) What is the outlier? 19

$$\text{Mean} = \frac{(1421-19)}{9-1}$$

$$= \frac{1402}{8}$$

$$= 175.25$$

Arrange: 160, 169, 172, (178, 179), 180, 180, 184

$$\text{Median} = \frac{178+179}{2} = \frac{357}{2}$$

$$= 178.5$$

Mode is 180