

King Fahd University of Petroleum and Minerals

Aerospace Engineering Department

AE 421

Class Assignment # 1

You are given the following values:
1, 3, 5, 6, 4, 2

|| Solution ||

Find the following:

Mean, Median, Mode, Deviation, Standard deviation, Variance, Average of the absolute value of the deviation, Average of deviation and Geometric mean.

- ① Mean = $\frac{1}{n} \sum x_i = \frac{1+3+5+6+4+2}{6} = \boxed{3.5}$
- ② Median = 1, 2, 3, 4, 5, 6 \Rightarrow Median = $\frac{3+4}{2} = \boxed{3.5}$
- ③ Mode = $\boxed{6}$
- ④ Deviation:- $d_i = X - \bar{x}$, $d_1 = 1 - 3.5 = -2.5$, $d_2 = 3 - 3.5 = -0.5$
 $d_3 = 5 - 3.5 = 1.5$, $d_4 = 6 - 3.5 = 2.5$, $d_5 = 4 - 3.5 = 0.5$
 $d_6 = 2 - 3.5 = -1.5$
- ⑤ Variance = $\frac{1}{n} \sum d_i^2 = \frac{(-2.5)^2 + (-0.5)^2 + (1.5)^2 + (2.5)^2 + (0.5)^2 + (-1.5)^2}{6}$
Variance = $\sigma^2 = \boxed{2.9}$
- ⑥ Standard deviation = $\sigma = \sqrt{\sigma^2} = \boxed{1.7}$
- ⑦ Avg of absolute value of deviation = $\frac{1}{n} \sum |x_i - \bar{x}| = \boxed{1.5}$
- ⑧ Avg of deviation = $\frac{1}{n} \sum d_i = \boxed{0}$
- ⑨ Geometric mean = $[1 \times 3 \times 5 \times 6 \times 4 \times 2]^{1/6} = \boxed{2.99}$