

11.7 STANDARD DEVIATION

METHOD OF VARIATION: DESCRIBES

HOW THE DATA IN A SET
ARE SPREAD OUT.

STANDARD DEVIATION, σ

$$\sigma = \sqrt{\frac{\sum (x - \bar{x})^2}{n}}$$

\bar{x} = MEAN

x : DATA VALUES

n : NUMBER OF DATA VALUES

NOTE: σ^2 IS CALLED THE VARIANCE

Ex/ FIND THE STANDARD DEVIATION, σ , AND THE VARIANCE, σ^2 .

5, 5, 6, 6, 6, 7, 7, 8, 9, 10

$$\bar{X} = \frac{5+5+6+6+6+7+7+8+9+10}{10}$$

$$= \frac{69}{10} = 6.9$$

<u>X</u>	<u>X - \bar{X}</u>	<u>(X - \bar{X})²</u>	<u>$\Sigma (X - \bar{X})^2$</u>
5	-1.9	3.61	= 3.61 + 3.61 + .81 + .81 + ... + 9.61
5	-1.9	3.61	
6	-.9	.81	= 24.9
6	-.9	.81	
6	-.9	.81	
7	.1	.01	$\sigma = \sqrt{\frac{24.9}{10}}$
7	.1	.01	
8	1.1	1.21	= 1.578
9	2.1	4.41	$\sigma^2 = 2.49$
10	3.1	9.61	