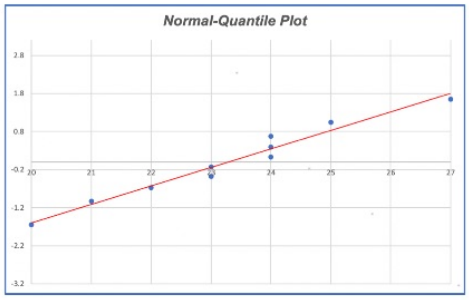
EXAMPLE 2 The speed limit in front of a school zone is 25 mph, and the speed of ten cars were recorded:

23 24 22 20 27 24 25 21 23 24

Assuming the speeds are normally distributed (is this a valid assumption?) find a 90% confidence interval for the population variance and standard deviation.



The normal-Quantile plot shows reasonable normality.

Estimating Variance Using Data

	Data:
1	23
2	24
3	22
4	20
5	27
6	24
7	25
8	21
9	23
10	24
11	
12	

Sample Variance=	4.0111
Sample Size=	10
Confidence Level=	0.9
Chi-Sq-Left CV=	3.3251
Chi-Sq-Right CV=	16.9190

90%-Conf Interval (Var)	
2.1337	10.8568

90%-Conf Interval (St.Dev.)	
1.4607	3.2950

$2.13 < \sigma^2 < 10.86$

$1.46 < \sigma < 3.30$