Assignment_7.21476

Problem Statement 1:

Let X_i represent each observation in the sample

Mean is given by $\bar{X} = \frac{1}{5}\sum X_i = \frac{1}{5}(1550 + 1700 + 900 + 850 + 1000 + 950) = \$1158.33$

Variance is given by

$s^2 = \frac{1}{5-1}\sum(X_i - \bar{X})^2 = \frac{1}{5}((1550 - 1158.33)^2 + \cdots + (950 - 1158.33)^2) = \$112\,847.22$

Hence the standard deviation is given by:

$$s = \sqrt{s^2} = \sqrt{112\,847.22} = \$335.93$$

Problem Statement 2:

Mean is given by:

$\bar{X} = \frac{1}{6}\sum X_i = \frac{1}{6}(3 + 21 + 98 + 203 + 17 + 9) = 58.5\ ft$

Variance is given by:

$s^2 = \frac{1}{6-1}\sum(X_i - \bar{X})^2 = \frac{1}{5}((3 - 58.5)^2 + (21 - 58.5)^2 + (98 - 58.5)^2 + (203 - 58.5)^2 + (17 - 58.5)^2 + (9 - 58.5)^2) = 6\,219.95\ square\ feet$

Problem Statement 3:

Let X be the random variable that represents the number of subjects failed by a student from a given class

The probability distribution is given by

x	0	1	2	3
$P(X = x)$	$\frac{4}{5}$	$\frac{1}{10}$	$\frac{7}{100}$	$\frac{3}{100}$