Statistical Calculations with the Calculator

We will show how to perform basic statistical calculations with the calculator SHARP EL-531W.

Let's compute the mean and standard deviation for the following sample set of data.

$$12,\ 15,\ 7,\ 14,\ 22,\ 11,\ 8$$

We first put the calculator in statistics mode (Stat 0) by doing the following.

$$\boxed{\text{MODE}} \quad \boxed{\triangleright} \quad \boxed{=} \quad \boxed{=}$$

We can now enter the data set one-by-one by using $\boxed{\text{DATA}}$, which is the $\boxed{\text{M+}}$ button on the calculator.

$$12\ \boxed{\text{DATA}}\ 15\ \boxed{\text{DATA}}\ \ldots\ 8\ \boxed{\text{DATA}}$$

Let's find the sample mean and sample standard deviation.

$$\boxed{\text{RCL}} \quad \boxed{\overline{x}} \quad \text{gives us} \quad \overline{x} = 12.71$$

$$\boxed{\text{RCL}} \quad \boxed{sx} \quad \text{gives us} \quad s = 5.02$$

If our data set corresponds to the whole population, we can find the population standard deviation.

$$\boxed{\text{RCL}} \quad \boxed{\sigma x} \quad \text{gives us} \quad \sigma = 4.65$$

$$\star\ \star\ \star$$

Let's now find the equation of the regression line and the correlation coefficient for following sample set of data.

x	5	8	10	11	14
y	22	26	31	37	42

We will put the calculator in the two-variables statistics mode (Stat 1) by doing the following.

$$\boxed{\text{MODE}} \quad \boxed{\triangleright} \quad \boxed{=} \quad \boxed{\triangleright} \quad \boxed{=}$$

We can now enter the data set one-by-one by using $\boxed{(x,y)}$, which is the $\boxed{\text{STO}}$ button, and $\boxed{\text{DATA}}$, which is the $\boxed{\text{M+}}$ button on the calculator.

$$5\ \boxed{(x,y)}\ 22\ \boxed{\text{DATA}} \quad 8\ \boxed{(x,y)}\ 26\ \boxed{\text{DATA}} \quad \ldots \quad 14\ \boxed{(x,y)}\ 42\ \boxed{\text{DATA}}$$

To find the equation of the regression line $y = a + bx$, we do the folllowing.

$$\boxed{\text{RCL}} \quad \boxed{a} \quad \text{gives us} \quad a = 9.04$$

$$\boxed{\text{RCL}} \quad \boxed{b} \quad \text{gives us} \quad b = 2.35$$

To find the correlation coefficient r, we do the folllowing.

$$\boxed{\text{RCL}} \quad \boxed{r} \quad \text{gives us} \quad r = 0.977$$

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