3B – Using the LSR line to model relationships

**INTERPRETING THE SLOPE AND Y-INTERCEPT**

For the regression line **y = a + bx**:

* The slope (b) estimates the average \_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_ in the response variable (y) for every one unit increase in the explanatory variable (x)
* The y-intercept (a) estimates the average value of the response variable (y) when the explanatory variable (x) equals 0.

**MAKING PREDICTIONS (INTERPOLATION AND EXTRAPOLATION)**

Making a prediction **within** the range of values of the explanatory variable is called

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. It is generally considered to give a **reliable** prediction.

Making a prediction **outside** the range of values of the explanatory variable is called

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. It is generally considered to give an **unreliable** prediction.

|  |  |
| --- | --- |
| Interpolation | Extrapolation |
|  |  |

*The relationship between weight and length of a fish species is: weight = –329 + 23.3 × length*

*Predict the weight of a fish that is 25cm long:*

*Predict the length of a fish that weighs 1200g:*