|  |  |
| --- | --- |
| **# CORRECT (x)** | **ATTITUDE (y)** |
| 17 | 94 |
| 13 | 73 |
| 12 | 59 |
| 15 | 80 |
| 16 | 93 |
| 14 | 85 |
| 16 | 66 |
| 16 | 79 |
| 18 | 77 |
| 19 | 91 |

Linear regression y=a+bx

Slope of line b=r (Sy / Sx)

Y-intercept a= yˉ​−b⋅xˉ​​

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **# CORRECT (x)** | **ATTITUDE (y)** | **(x - x̄)** | **(y - ȳ)** | **(x - x̄)(y - ȳ)** | **(x - x̄)²** | **(y - ȳ)²** |
| 17 | 94 | 1.4 | 14.3 | 20.02 | 1.96 | 204.49 |
| 13 | 73 | -2.6 | -6.7 | 17.42 | 6.76 | 44.89 |
| 12 | 59 | -3.6 | -20.7 | 74.52 | 12.96 | 428.49 |
| 15 | 80 | -0.6 | 0.3 | -0.18 | 0.36 | 0.09 |
| 16 | 93 | 0.4 | 13.3 | 5.32 | 0.16 | 176.89 |
| 14 | 85 | -1.6 | 5.3 | -8.48 | 2.56 | 28.09 |
| 16 | 66 | 0.4 | -13.7 | -5.48 | 0.16 | 187.69 |
| 16 | 79 | 0.4 | -0.7 | -0.28 | 0.16 | 0.49 |
| 18 | 77 | 2.4 | -2.7 | -6.48 | 5.76 | 7.29 |
| 19 | 91 | 3.4 | 11.3 | 38.42 | 11.56 | 127.69 |

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The **impact of x** in the context of slope is that **x determines how much y will change** based on the slope.

In a linear relationship:

* **Slope** (b) tells us **how much y changes for each 1-unit change in x**.
* So, as x changes, it **multiplies by the slope** to determine how much y will change.

For example, if the equation is y=30.09+3.18xy = 30.09 + 3.18xy=30.09+3.18x:

* When xxx increases by 1, yyy increases by 3.183.183.18 (the slope value).
* If xxx increases by 2, yyy increases by 3.18×2=6.363.18 \times 2 = 6.363.18×2=6.36.
* If xxx decreases, yyy decreases by the same factor of the slope.

In simple terms:

* **The larger the value of xxx**, the more it amplifies the effect of the slope on yyy.
* **The slope acts like a multiplier** for xxx in determining the value of yyy.

Whether an **increase in yyy** is good or bad depends on the **context of the problem** and what yyy represents.

**Examples:**

1. **Positive Outcome (Good Increase)**:
   * If yyy represents **profit** or **sales**, an increase in yyy is usually **good** because it means more revenue.
   * If yyy represents **student scores** or **health indicators** (e.g., fitness levels), an increase may also be **positive**.
2. **Negative Outcome (Bad Increase)**:
   * If yyy represents **expenses** or **pollution levels**, an increase in yyy could be **bad** because it means higher costs or worse environmental impact.
   * If yyy represents **errors** or **disease cases**, a rising yyy is typically **undesirable**.

**Summary**

An increase in yyy is neither inherently good nor bad—its impact depends entirely on what yyy represents in the real-world context.