**Weighted Average or Weighted Mean**

What is a Weighted Mean?



A weighted mean is a kind of average. Instead of each data point contributing equally to the final mean, some data points contribute more “weight” than others. If all the weights are equal, then the weighted mean equals the arithmetic mean (the regular “average” you’re used to). Weighted means are very common in statistics, especially when studying populations.

**Example:**

Take the x values = 1,2,3,4,5. The corresponding weights are = 5,20,40,80,100

Weighted mean = (W1X1+W2X2+W3X3+...WnXn)/(W1+W2+W3+...Wn)

Weighted mean = (5+40+120+320+500)/(5+20+40+80+100)

Weighted mean = (985)/(245)

Weighted mean = 4.020408163265306

**Exercise:**

Calculate the weighted mean for the following data as shown. *(****Note****: weight adds to 100%)*

|  |  |
| --- | --- |
| **Grade in an exam (X)** | **Weight (W)** |
| 90% | 25% |
| 75% | 50% |
| 87% | 25% |

|  |  |
| --- | --- |
| **Grade in an exam (X)** | **Weight (W)** |
| .9 | .25 |
| .75 | .5 |
| .87 | .25 |

Solution: Weighted mean = .8175 or 81.75%