Mean of datasets

6/6 points (100.00%)

Practice Quiz, 6 questions

✔ **Congratulations! You passed!**

<div>Next Item</div>

✔ 1 / 1 points

1.

What is the mean of the dataset $\mathcal{D} = \{1, 2, 3\}$?

Do the exercises using pen and paper.

○ 6

○ 3

◉ 2

Correct
That's it. Good job!

✔ 1 / 1 points

2.

Compute the mean of the following dataset:

$$\mathcal{D} = \left\{ \begin{bmatrix} 1 \\ 4 \\ 7 \end{bmatrix}, \begin{bmatrix} 2 \\ 5 \\ 8 \end{bmatrix}, \begin{bmatrix} 3 \\ 6 \\ 9 \end{bmatrix} \right\}$$

Do the exercises using pen and paper.

○ $\begin{bmatrix} -2 \\ -5 \\ -8 \end{bmatrix}$

○

Mean of datasets $\begin{bmatrix} 2 \\ 5 \\ 8 \end{bmatrix}$

Practice Quiz, 6 questions

6/6 points (100.00%)

Correct

Well done!

○ $\begin{bmatrix} 6 \\ 15 \\ 24 \end{bmatrix}$

✔ 1 / 1
points

3.

What is the mean of the following dataset, **after** multiplying each sample in the dataset by 2?

$$\mathcal{D} = \left\{ \begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix}, \begin{bmatrix} 3 \\ 4 \\ 5 \end{bmatrix}, \begin{bmatrix} 5 \\ 3 \\ 1 \end{bmatrix} \right\}$$

○ $\begin{bmatrix} 6 \\ 6 \\ 6 \end{bmatrix}$

Correct

Well done!

○ $\begin{bmatrix} 3 \\ 3 \\ 3 \end{bmatrix}$

○ $\begin{bmatrix} 18 \\ 18 \\ 18 \end{bmatrix}$

✔ 1 / 1
points

4.

Mean of datasets

What is the mean of the following dataset, **after** adding $\begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix}$ to each sample in the following dataset?

6/6 points (100.00%)

$$\mathcal{D} = \left\{ \begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix}, \begin{bmatrix} 3 \\ 4 \\ 5 \end{bmatrix}, \begin{bmatrix} 5 \\ 3 \\ 1 \end{bmatrix} \right\}$$

○ $\begin{bmatrix} 2 \\ 1 \\ 0 \end{bmatrix}$

◉ $\begin{bmatrix} 4 \\ 5 \\ 6 \end{bmatrix}$

Correct
Well done!

○ $\begin{bmatrix} 3 \\ 3 \\ 3 \end{bmatrix}$

✔ 1 / 1 points

5.

Assuming that we know the mean $\bar{x}_{n-1}$ of a dataset $\mathcal{D}_{n-1}$ with $n-1$ data points. Now, suppose that we collect another data point, which we denote by x_*. Select the correct formula that computes the correct new mean $\bar{x}_n$ of the full data set $\mathcal{D}_n = \mathcal{D}_{n-1} \cup \{x_*\}$, i.e., we add x_* to the dataset $\mathcal{D}$.

○ $\bar{x}_n = \bar{x}_{n-1} + \frac{1}{n-1}\left(x_* - \bar{x}_{n-1}\right)$

○ $\bar{x}_n = \bar{x}_{n-1} + \frac{1}{n+1}\left(x_* - \bar{x}_{n-1}\right)$

○ $\bar{x}_n = \bar{x}_{n-1} + \frac{1}{n+1}\left(\bar{x}_{n-1} - x_*\right)$

◉ $\bar{x}_n = \bar{x}_{n-1} + \frac{1}{n}\left(x_* - \bar{x}_{n-1}\right)$

Correct
Excellent!

Mean of datasets ✓

1 / 1 points

6/6 points (100.00%)

Practice Quiz, 6 questions

Assuming you are given an image as a two dimensional array of shape 28 x 28. Write a small piece of python code to reshape this image to a vector of length 784 (=28 x 28).

Hint: This can be a one-liner.

```
1    import numpy as np
2
3    def reshape(x):
4        """return x_reshaped as a flattened vector of the multi-dimensional
             array x"""
5        x_reshaped = x.reshape(-1,1)
6        return x_reshaped
7        |
```

Run

Reset

Correct Response

Good job!

👍   👎   🏳