Dot product

Practice Quiz, 5 questions

5/5 points (100.00%)

✔ Congratulations! You passed!

Next Item

✔ 1 / 1 points

1.

Compute the length of $\mathbf{x} = \begin{bmatrix} 1 \\ -1 \\ 3 \end{bmatrix}$ using the dot product. Do the exercises using pen and paper.

- $\sqrt{3}$
- 3
- $\sqrt{13}$
- $\sqrt{5}$
- ◉ $\sqrt{11}$

Correct
Well done!

- 11

✔ 1 / 1 points

2.

Compute the angle (in rad) between $\mathbf{x} = \begin{bmatrix} 3 \\ 4 \end{bmatrix}$ and $\mathbf{y} = \begin{bmatrix} -1 \\ -1 \end{bmatrix}$ using the dot product.

2.9996955989856287

Correct Response
Good job!

Dot product

5/5 points (100.00%)

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1 / 1 points

3.

Compute the distance between $\mathbf{x} = \begin{bmatrix} 3 \\ 4 \end{bmatrix}$ and $\mathbf{y} = \begin{bmatrix} 1 \\ 1 \end{bmatrix}$.

3.60555127546

Correct Response

1 / 1 points

4.

Write a piece of code that computes the length of a given vector x.

```
import numpy as np

def length(x):
  """Compute the length of a vector"""
  length_x = np.sqrt(x.T @ x) # <--- compute the length of a vector x
      here.

  return length_x

print(length(np.array([1,0])))
```

Run

Reset

Correct Response
Good job!

1 / 1 points

5.

Dot product

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We are given two vectors

$$\mathbf{x} = \begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix}, \quad \mathbf{y} = \begin{bmatrix} -1 \\ 0 \\ 8 \end{bmatrix}$$

Compute the angle (in rad) between $\mathbf{x}$ and $\mathbf{x} - \mathbf{y}$.

Do the exercises using pen and paper, but you will need a calculator at some point.

2.002829357226812

Correct Response