Dot product

TOTAL POINTS 5

1.Question 1

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

1 / 1 point

- 3
- sqrt{13}
- sqrt{11}
- 11
- sqrt{3}
- sqrt{5}

2.Question 2

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

1 / 1 point

2.999

3.Question 3

Compute the distance between $\mathbf{x} = [3\ 4]$ and $\mathbf{y} = [1\ -1]$. Do the exercises using pen and paper. Enter your answer as a decimal number (calculator is fine to get it).

1 / 1 point

5.385

4.Question 4

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

1 / 1 point

```
import numpy as np
def length(x):
  """Compute the length of a vector"""
  length_x = np.sqrt(np.dot(x, x)) # <--- compute the length of a vector x here.

  return length_x

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

RunReset

5.Question 5
We are given two vectors

$$\mathbf{x} = [1\ 2\ 3],\ \mathbf{y} = [-1\ 0\ 8]$$

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.

1 / 1 point

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