

✓ Congratulations! You passed!

Grade received 100% To pass 80% or higher

Go to next item

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.

1 / 1 point

- ☐ $\sqrt{3}$
☐ $\sqrt{5}$
☐ $\sqrt{13}$
☐ 3
☒ $\sqrt{11}$
☐ 11

✓ Correct
Well done!

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

1 / 1 point

When you are asked to enter numerical answers, please use decimal numbers (e.g., 1.4 or 1.41 instead of $\sqrt{2}$).

1.71

✓ Correct
Good job!

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

1 / 1 point

3.61

✓ Correct

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

1 / 1 point

```
1 import numpy as np
2
3 def length(x):
4     """Compute the length of a vector"""
5     length_x = np.dot(x,x)**(0.5) # <-- compute the length of a vector x here.
6
7     return length_x
8
9 print(length(np.array([1,0])))
```

Run

Reset

1.0

✓ Correct
Good job!

5. We are given two vectors

1 / 1 point

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

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.

2.00

✓ Correct