

Dot product of vectors

Practice Assignment • 15 min

← Back

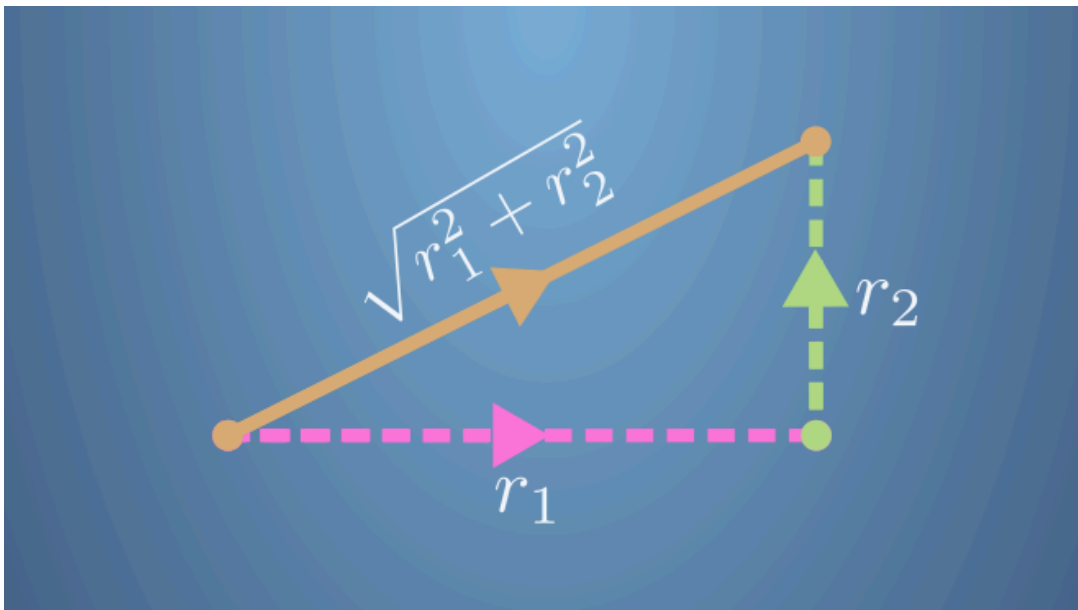


1. As we have seen in the lecture videos, the dot product of vectors has a lot of applications. Here, you will complete some exercises involving the dot product.

1 point

We have seen that the size of a vector with two components is calculated using Pythagoras' theorem, for example the following diagram shows how we calculate

the size of the orange vector $\mathbf{r} = \begin{bmatrix} r_1 \\ r_2 \end{bmatrix}$:



In fact, this definition can be extended to any number of dimensions; the size of a vector is the square root of the sum of the squares of its components. Using this

information, what is the size of the vector $\mathbf{s} = \begin{bmatrix} 1 \\ 3 \\ 4 \\ 2 \end{bmatrix}$?

- ☐ $|\mathbf{s}| = 10$
- ☐ $|\mathbf{s}| = \sqrt{10}$
- ☒ $|\mathbf{s}| = \sqrt{30}$
- ☐ $|\mathbf{s}| = 30$

2. Remember the definition of the dot product from the videos. For two n

1 point