

How do I calculate a dot product on a TI-84 calculator?

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The dot product is a mathematical operation that calculates the sum of the products of corresponding elements in two vectors. To calculate a dot product on a TI-84 calculator, follow these steps:

1. Enter the first vector into a list using the "STAT" button.
2. Repeat for the second vector.
3. Press the "2ND" and "LIST" buttons to access the "OPS" menu.
4. Select the "Dot" option.
5. Choose the two lists containing the vectors.
6. Press "ENTER" to calculate the dot product.

The result will be displayed on the screen. This feature on the TI-84 calculator allows for quick and accurate computation of dot products, making it a useful tool for various mathematical and scientific applications.

Calculate a Dot Product on a TI-84 Calculator

Given vector $a =$ and vector $b =$, the dot product of vector a and vector b , denoted as $a \cdot b$, is given by:

$$a \cdot b = a_1 * b_1 + a_2 * b_2 + a_3 * b_3$$

For example, if $a =$ and $b =$, then the dot product of a and b would be equal to:

$$a \cdot b = 2*4 + 5*3 + 6*2$$

$$a \cdot b = 8 + 15 + 12$$

$$a \cdot b = 35$$

We can use the following syntax to calculate the dot product of two vectors on a TI-84 calculator:

$\text{sum}(\{2, 5, 6\} * \{4, 3, 2\})$

The following step-by-step example shows how to use this syntax in practice.

Example: Calculate Dot Product on TI-84 Calculator

Use the following steps to calculate the dot product between two vectors:

Step 1: Enter the sum(command.

First, press 2nd then press STAT then scroll over to MATH and press sum:



Step 2: Enter the left curly brace.

Next, press 2nd then press (to enter the first curly

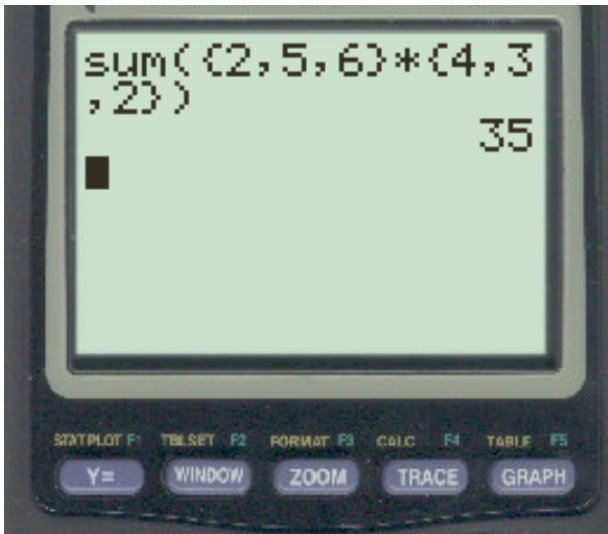
brace:



Next, enter the following values for each vector:

Vector a: 2, 5, 6 Vector b: 4, 3, 2

Be sure to include a multiplication sign between the two vectors and close off the end of the sum() command with a parenthesis on the right. Then press ENTER:



The dot product turns out to be 35. This matches the value that we calculated by hand.