

The Secret of The Dot Product Pre Calculus Honors 8 5 Dot Product

Lesson 242 | Precalculus | Vectors and dot products

<https://www.youtube.com/watch?v=UIZrhfcPQAM>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01 For $u = \langle 14, 5 \rangle$ and $v = \langle 3, -2 \rangle$, find $u + v$, $u \cdot v$, $|u|$, and decide whether they are perpendicular.

02 For $u = \langle 5, 4 \rangle$ and $v = \langle 12, -7 \rangle$, find $u + v$, $u \cdot v$, $|u|$, and decide whether they are perpendicular.

03 For $u = \langle 14, 5 \rangle$ and $v = \langle 7, -7 \rangle$, find $u + v$, $u \cdot v$, $|u|$, and decide whether they are perpendicular.

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04

For $u = \langle 6, 10 \rangle$ and $v = \langle 4, -2 \rangle$, find $u+v$, $u \cdot v$, $|u|$, and decide whether they are perpendicular.

05

For $u = \langle 9, 11 \rangle$ and $v = \langle 2, -4 \rangle$, find $u+v$, $u \cdot v$, $|u|$, and decide whether they are perpendicular.

06

For $u = \langle 8, 10 \rangle$ and $v = \langle 7, -6 \rangle$, find $u+v$, $u \cdot v$, $|u|$, and decide whether they are perpendicular.

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01

For $u = \langle 14, 5 \rangle$ and $v = \langle 3, -2 \rangle$, find $u + v$, $u \cdot v$, $|u|$, and decide whether they are perpendicular.

$u + v = \langle 17, 3 \rangle$. $u \cdot v = 42 - 10 = 32$. $|u| = \sqrt{221}$. Nonzero dot product: not perpendicular.

02

For $u = \langle 5, 4 \rangle$ and $v = \langle 12, -7 \rangle$, find $u + v$, $u \cdot v$, $|u|$, and decide whether they are perpendicular.

$u + v = \langle 17, -3 \rangle$. $u \cdot v = 60 - 28 = 32$. $|u| = \sqrt{41}$. Nonzero dot product: not perpendicular.

03

For $u = \langle 14, 5 \rangle$ and $v = \langle 7, -7 \rangle$, find $u + v$, $u \cdot v$, $|u|$, and decide whether they are perpendicular.

$u + v = \langle 21, -2 \rangle$. $u \cdot v = 98 - 35 = 63$. $|u| = \sqrt{221}$. Nonzero dot product: not perpendicular.

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04

For $u = \langle 6, 10 \rangle$ and $v = \langle 4, -2 \rangle$, find $u + v$, $u \cdot v$, $|u|$, and decide whether they are perpendicular.

$u + v = \langle 10, 8 \rangle$. $u \cdot v = 24 - 20 = 4$. $|u| = \sqrt{136}$. Nonzero dot product: not perpendicular.

05

For $u = \langle 9, 11 \rangle$ and $v = \langle 2, -4 \rangle$, find $u + v$, $u \cdot v$, $|u|$, and decide whether they are perpendicular.

$u + v = \langle 11, 7 \rangle$. $u \cdot v = 18 - 44 = -26$. $|u| = \sqrt{202}$. Nonzero dot product: not perpendicular.

06

For $u = \langle 8, 10 \rangle$ and $v = \langle 7, -6 \rangle$, find $u + v$, $u \cdot v$, $|u|$, and decide whether they are perpendicular.

$u + v = \langle 15, 4 \rangle$. $u \cdot v = 56 - 60 = -4$. $|u| = \sqrt{164}$. Nonzero dot product: not perpendicular.