PRE-CALCULUS · CLASSWORK · SPECIAL ED

Add, Subtract, and Scale Vectors

SCORE / 25

01 Part A · Practice

Add and subtract component by component: $\langle a, b\rangle + \langle c, d\rangle = \langle a + c, b + d\rangle$; a scalar multiplies every component: $k\langle a, b\rangle = \langle ka, kb\rangle$.

EXAMPLE

$\mathbf{u} = \langle 2, -3\rangle$, $\mathbf{v} = \langle -1, 4\rangle$. **Find** $3\mathbf{u} - 2\mathbf{v}$.

1. $3\mathbf{u} = \langle 6, -9\rangle$, $2\mathbf{v} = \langle -2, 8\rangle$.
2. $\langle 6 - (-2), -9 - 8\rangle = \langle 8, -17\rangle$.

WORDS TO KNOW

scalar	a plain number that stretches a vector
resultant	the sum of vectors
tip-to-tail	start the second arrow where the first ends

1 ●○○

$\mathbf{u} = \langle 2, 1\rangle$, $\mathbf{v} = \langle 5, 2\rangle$. Find $\|\mathbf{u} - \mathbf{v}\|$ exactly.

HINT Combine first, then find the length.

2 ●○○

$\mathbf{u} = \langle 2, 5\rangle$, $\mathbf{v} = \langle 2, 5\rangle$. Find $\mathbf{w}$ if $\mathbf{u} + \mathbf{w} = \mathbf{v}$.

HINT Solve like an equation: subtract $\mathbf{u}$, then divide.

PREVIEW

Preview - the full worksheet and its answer key are at primeworksheet.com