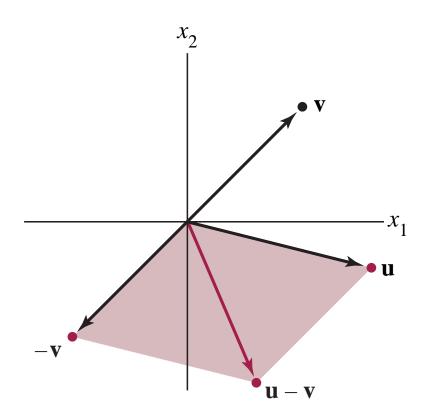
## **Vector "Subtraction"**

Write  $\mathbf{u} - \mathbf{v}$  in place of  $\mathbf{u} + (-1)\mathbf{v}$ .



## **Linear Combinations**

For vectors  $\mathbf{v}_1, \mathbf{v}_2, \ldots, \mathbf{v}_p$  in  $\mathbb{R}^n$  and scalars  $c_1, \ldots, c_p$ , the vector

$$\mathbf{y} = c_1 \mathbf{v}_1 + \dots + c_p \mathbf{v}_p$$

is called a **linear combination** of  $\mathbf{v}_1, \ldots, \mathbf{v}_p$  using weights  $c_1, \ldots, c_p$ . Examples:

$$3.5\mathbf{v}_1 + 0\mathbf{v}_2$$
 (= 3.5 $\mathbf{v}_1$ ),  $0\mathbf{v}_1 + 0\mathbf{v}_2$  (= **0**)

## 1.3.02

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