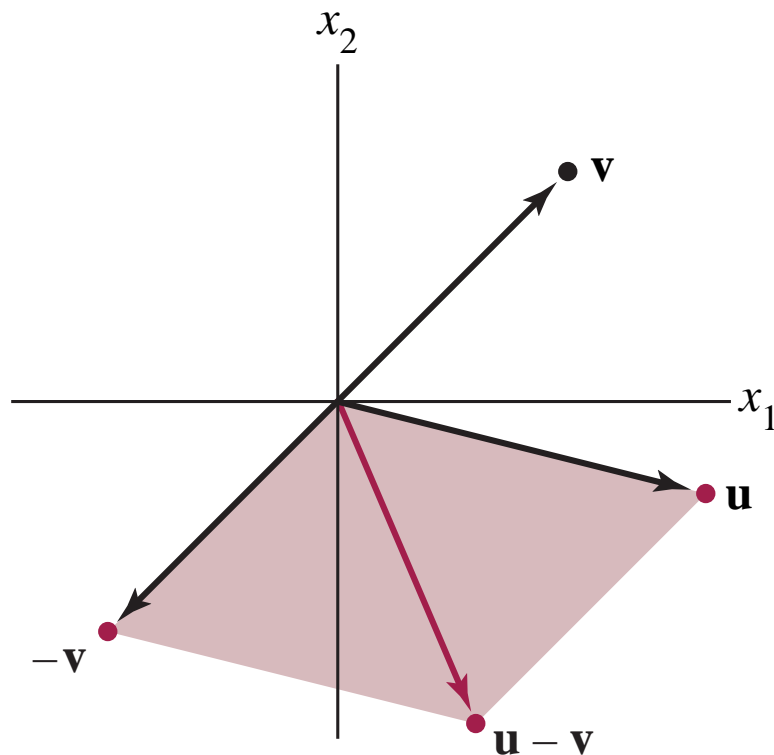


Vector “Subtraction”

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



Linear Combinations

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

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

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

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