

### Section 3.3 Additional Problems

1. Confirm the Cauchy-Schwarz inequality for  $\mathbf{u} = (1, 3, -5, 0, 8)$  and  $\mathbf{v} = (-4, 2, 0, 7, 6)$ .
2. Use the Cauchy-Schwarz inequality to prove

$$(a \cos \theta + b \sin \theta)^2 \leq a^2 + b^2,$$

for all  $a, b, \theta \in \mathbb{R}$ .