

$$\boxed{59} \quad W = \mathbf{F} \cdot \mathbf{D} = \langle 10, 20 \rangle \cdot \langle 15, 22 \rangle = (10)(15) + (20)(22) = 590 \text{ ft} \cdot \text{lb}$$

$$\|\mathbf{F}\| = \sqrt{10^2 + 20^2} = \sqrt{100 + 400} = \sqrt{500} = 10\sqrt{5} \approx 22.4 \text{ lb}$$