

1/10

$$g_{\text{rel}} = 9.780327(1 + 0.005279 \sin^2 \gamma + 0.000023 \sin^4 \gamma + \dots)$$

$$\text{At } \gamma = 40^\circ, \quad g_{\text{rel}} = 9.801698 \text{ m/s}^2$$

$$\begin{aligned} g_{\text{abs}} &= g_{\text{rel}} + 0.03382 \cos^2 \gamma \\ &= 9.801698 + 0.03382 \cos^2 40^\circ \\ &= 9.821544 \text{ m/s}^2 \end{aligned}$$

$$W_{\text{abs}} = m g_{\text{abs}} = 90 (9.821544) = \underline{883.9 \text{ N}}$$

$$W_{\text{rel}} = m g_{\text{rel}} = 90 (9.801698) = \underline{882.2 \text{ N}}$$