

29. One approach is to assume a “path” from \vec{r}_i to \vec{r}_f and do the line-integral accordingly. Another approach is to simply use Eq. 7-36, which we demonstrate:

$$\begin{aligned} W &= \int_{x_i}^{x_f} F_x dx + \int_{y_i}^{y_f} F_y dy \\ &= \int_2^{-4} (2x) dx + \int_3^{-3} (3) dy \end{aligned}$$

with SI units understood. Thus, we obtain $W = 12 - 18 = -6$ J.