$y = 2x - 3 \quad \Rightarrow \quad L = \int_{-2}^{1} \sqrt{1 + (dy/dx)^2}\, dx = \int_{-2}^{1} \sqrt{1 + (2)^2}\, dx$
$= \sqrt{5}\,[1 - (-2)] = 3\sqrt{5}.$
The arc length can be calculated using the distance formula, since the curve is a line segment, so
$L = [\text{distance from } (-2, -7) \text{ to } (1, -1)] = \sqrt{[-2 - (1)]^2 + [-1 - (-7)]^2} = 3\sqrt{5}$