$$\int_{1}^{-2} (x^{2} - 2x) dx = \begin{vmatrix} f(x) = x^{2} - 2x \\ \int f(x) dx = \frac{x^{3}}{3} - x^{2} + C \end{vmatrix} = \left[\frac{x^{3}}{3} - x^{2} \right]_{-1}^{2} = F(x) = \frac{x^{3}}{3} - x^{2}$$

$$= \left(\frac{2^{3}}{3} - 2^{2} \right) - \left(\frac{(-1)^{3}}{3} - (-1)^{2} \right) = \left(\frac{8}{3} - 4 \right) = -\frac{4}{3} + \frac{4}{3} = 0$$