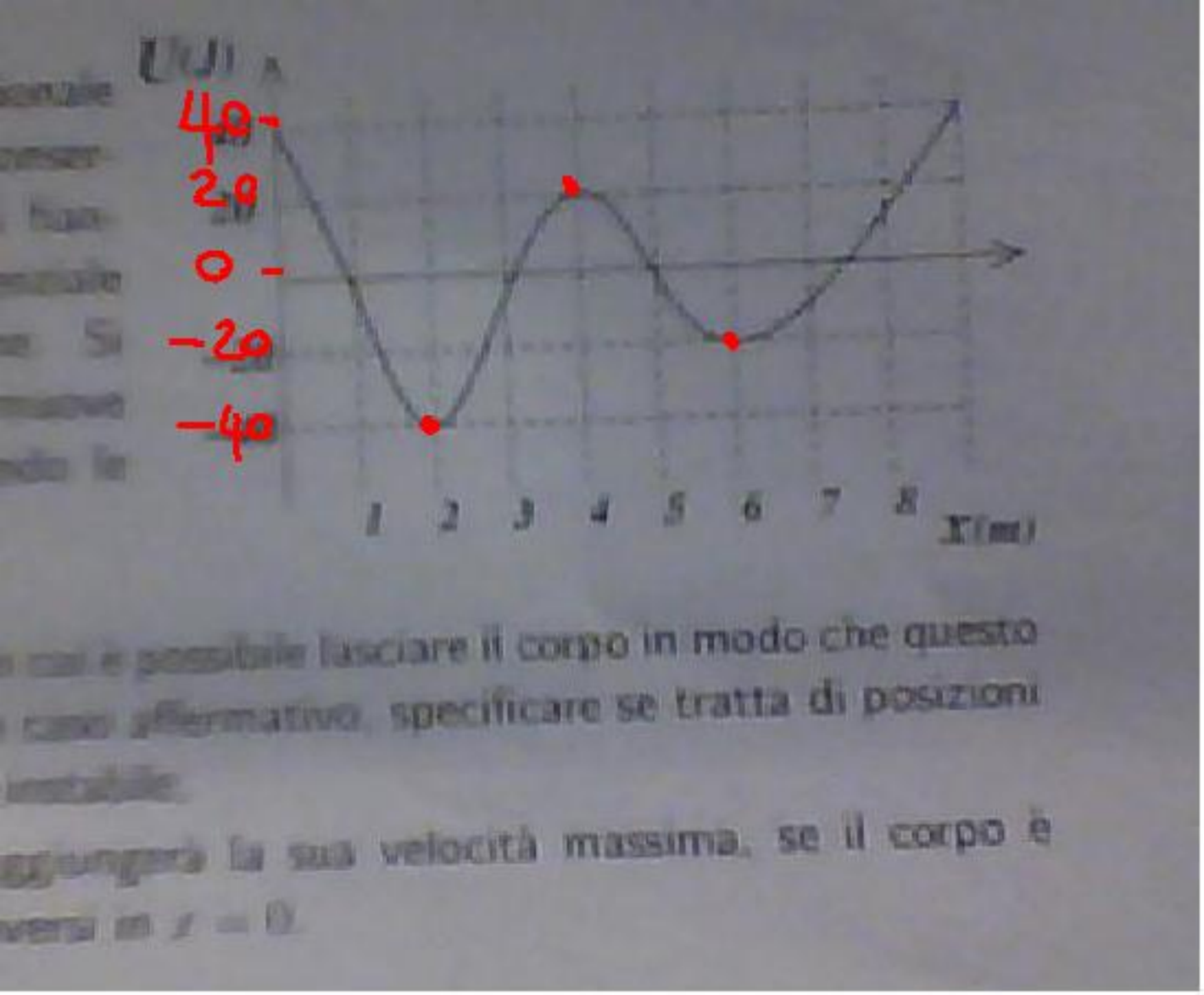


$F_A = 6{,}0\,N$

$x = 4\,m$

$L = F \cdot s_{//}$

$L = 6{,}0\,N \cdot 4\,m = -24\,J$

$\Delta U = -20\,J$

$\Delta T + \Delta U = L_{TOT} - L_C$

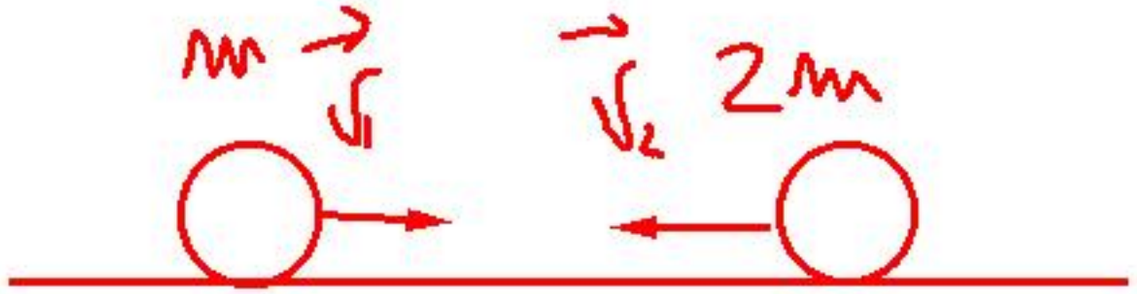
$\Delta T = L_{TOT} = -24\,J$

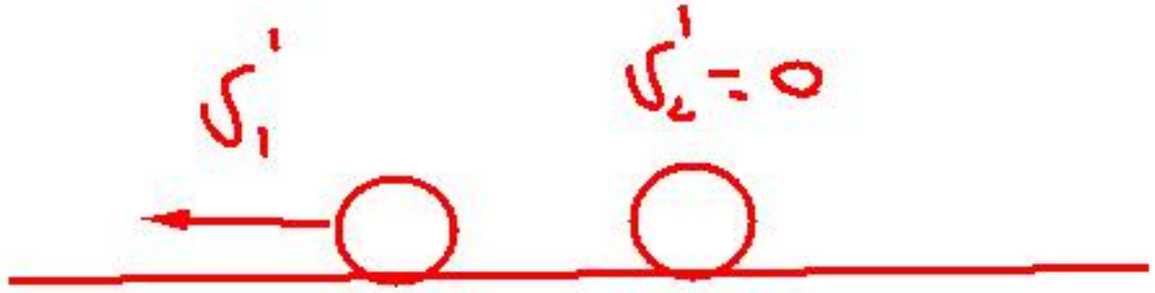
$\Delta U = -L_C$

$E(x=0\,m) = 40\,J$

$E(x=4\,m) = 20\,J$

$\Delta E_{MAX} = -20\,J$





Soluzioni

~~$v_2 = 0$~~

$v_2 = 2v_1$

$$\begin{cases} m v_1 - 2m v_2 = m v_1' \\ m v_1^2 + 2m v_2^2 = m v_1'^2 \end{cases}$$

$$(v_1 - 2v_2)^2 = v_1'^2$$

$$(v_1 - 2v_2)^2 = v_1^2 + 4v_2^2$$

$$v_1^2 + 4v_2^2 - 4v_1 v_2 = v_1^2 + 2v_2^2$$

$$4v_2^2 - 4v_1 v_2 - 2v_2^2 = 0$$

$$2v_2^2 - 2v_1 v_2 - v_2^2 = 0$$

$$v_2^2 - 2v_1 v_2 = 0$$

$$v_2(v_2 - 2v_1) = 0$$

$$F = G\frac{m_1 m_2}{r^2} \qquad U(r) = -G\frac{m_1 m_2}{r}$$

$$[U] = [L] = [F \cdot s] = [F \cdot l]$$

$$P = mg \qquad U_p = mgh$$

$$g = G\frac{M_T}{R^2} \qquad U(R+h) \rightarrow \underline{\underline{h \ll R}}$$

$$U(R+h) = -G\frac{M_T m}{R+h}\cdot\frac{R-h}{R-h} =$$

$$= -G\frac{M_T \cdot m}{R^2-h^2}(R-h) =$$

Se $h \ll R$ $\simeq -G\frac{M_T}{R^2}\cdot m\,(R-h) =$

$$= -mgR + mgh$$

$$\boxed{U(R+h) \simeq -mgR + mgh}$$