

(c) (i) $x = \frac{t-2}{t+2}$ when $t=0$.

$x = \frac{0-2}{0+2} = -1$ the displacement is (-1) .

(ii) Velocity = $\frac{dy}{dx} = \frac{v \frac{dy}{dt} - u \frac{dv}{dt}}{v^2}$

v^2

$= \frac{t-2}{t+2} \cdot 1 = \frac{(t+2)(1) - (t-2)(1)}{(t+2)^2}$

$= \frac{(t+2) - t + 2}{(t+2)^2} = \frac{-t+2}{t+2}$

Acceleration: $\frac{-t+2}{t+2} \Rightarrow \frac{dy}{dx} = \frac{v \frac{dy}{dt} - u \frac{dv}{dt}}{v^2}$

v^2

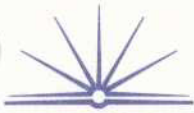
$= \frac{(t+2)(1) - (-t+2)(1)}{(t+2)^2}$

$= \frac{-t+2+t-2}{(t+2)^2}$

$\therefore = \frac{1-4}{t+2}$

(iii) NO, because when $t=0$, the displacement of the particle is -1 .

(iv) velocity decreases as the particle increases.



b) $\left(\frac{2}{1.5}\right) \approx \frac{4}{3}$

(ii) $\left(\frac{3}{2.25}\right) \approx \frac{4}{3}$