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

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

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

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

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

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

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

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

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

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

(iv) Velocity decreases as the particle increases.

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b) $\frac{2}{1.5}$ ~~$\frac{15}{2}$~~

(ii) $\frac{3}{2.25}$ ~~$= 2.25$~~