



WHITE
STRONG
S





$$\int x\sqrt{x+1} dx$$

$$= \int u^2(u+1)2u du$$

$$= 2 \int u^3 + u^2 du$$

$$= 2 \left[\frac{u^4}{4} + \frac{u^3}{3} \right]$$

$$= \frac{1}{2} u^4 + \frac{2}{3} u^3$$

$$= \frac{1}{2} (x+1)^2 + \frac{2}{3} (x+1)^{3/2}$$

- b) (i) at $t=0$ $x=7$
- c) (i) $v = -4 \text{ m/s}$
 $\ddot{x} = 16 \text{ m/s}^2$

- (ii) as $t \rightarrow \infty$
- (ii) $v = 0$
 $\ddot{x} = 0$

$$x = t^2 - 8t + 7$$

$$v = 2t - 8$$

$$x = 2$$

$$y = \ln(\sin x)$$

$$y = \ln(\sin x) \quad dx = 2u du$$

$$du = \frac{1}{2} (x+1)^{-1/2} dx$$

$$x = e^{-4t}$$

$$v = -4e^{-4t}$$

$$a = 16e^{-4t}$$

$$y = \ln(\sin x)$$

$$dx = 2u du$$

$$du = \frac{1}{2} (x+1)^{-1/2} dx$$