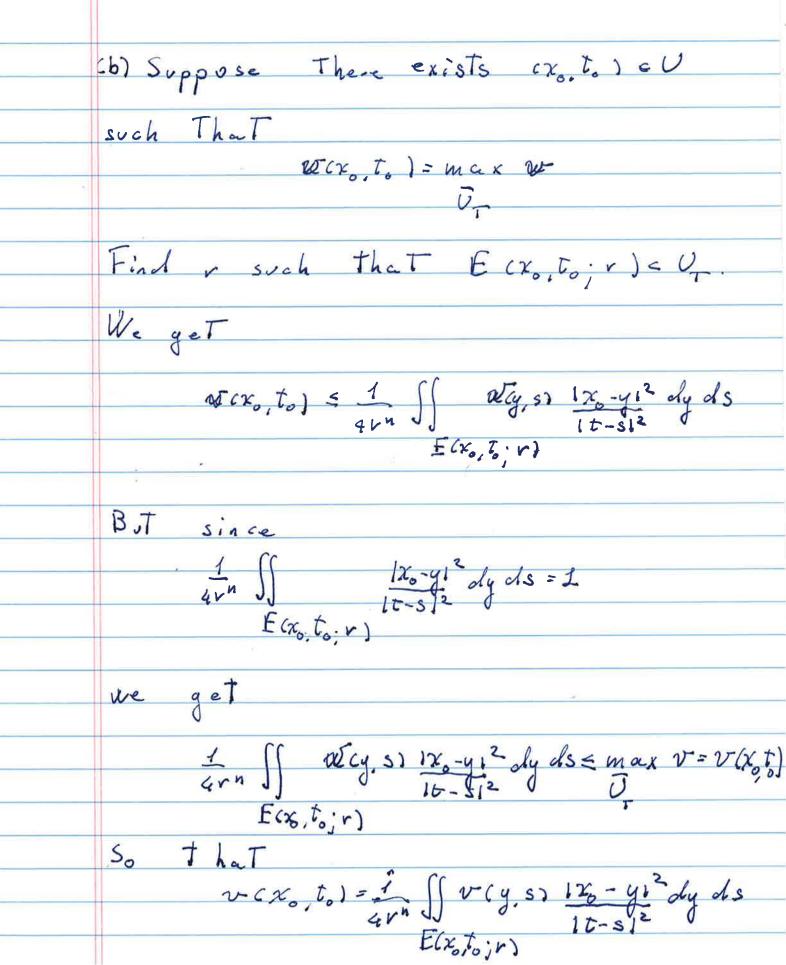


We thus have  $w(x,t) = \int_{112}^{6} \int_{0}^{6} (x-y,t-s) g(ss) ds =$  $= - \int \int \left( \bar{\phi}(x-y, t-s) - \bar{\phi}(z+y, t-s) \right) g'(s) dy ds$ Integraling by part we yet  $w(x,t) = -\int_{\mathbb{R}^+} \int_{\mathbb{R}^+} dt \, \phi(x-y,t-s) - \phi(x+y,t-s) \, g(s) \, ds \, dy$ - g (t) we used That  $\lim_{\varepsilon \to 0} \int (\phi(x - y, \varepsilon) - \phi(x + y, \varepsilon)) dy = 1$  $W(x, t) = -g(t) - \int_{\mathbb{R}^{+}} \int_{\mathbb{R}^{+}$ Matograping the part ingerin we get  $w(x,t) = -g(t) - \int \partial_y (\phi(x-y,t-s) - \phi(x+y,t-s)) |_{y=0}^{y=0} q(s) ds = 0$  $-g(t)-2\int_{\mathcal{X}}^{\infty}\phi(x,t-s)g(s)ds$ 

So That we finally get, for x>0 u(x,t) = w(x,t) + g(t) =  $-2 \int_{\mathcal{X}} \phi(x,t-s) g(s) ds$ That is The Segircal formula.

2.5 n 14 (a) Reapeting the proof of Theorem 3 pag 52 we see that \$ (r) = 1 \[ \left( -4 n us \gamma - \frac{2n}{S} \frac{2}{5} uy; y: \right) dy ds is valid for every u(x,t) smooth. Ne Thus get Ø (r) ≥ 1 / (-4n Duy - 2n 5 ugigi) dy ds Proceeding as on page 54 we get \$ (V) 20 That, Together with \$(0) = 4w (0,0) gives p (r) ≥ 4 U (0,0)

That is exactly the The sis



From here you can proceed exactly as in The proof of Th. 4 pag. 54

while

So ThaT

(d) Observe That if u solve The heat eg. so do ut and ux: Since plan=x2 is convex we have That u, and uz are subsolution. America But clearly The sum of subsolution is a subsolution.