

$$= \int_{\Omega} G(x, x'; f) u(x'; f) dx' .$$

$$4\pi^2 f^2 \sin(x) + 2\pi^2 f^2 \cos(x)$$



$$\Delta G(x, x', f) = \int_{-\infty}^{\infty} 8\pi^2 f^2 G(x', x, f) \Delta S(x') dx',$$

$$\frac{\partial G(x, x', t)}{\partial s(x)} = 8\pi^2 f^2 s(x) G(x, x', t).$$

$\partial p(x, f)$

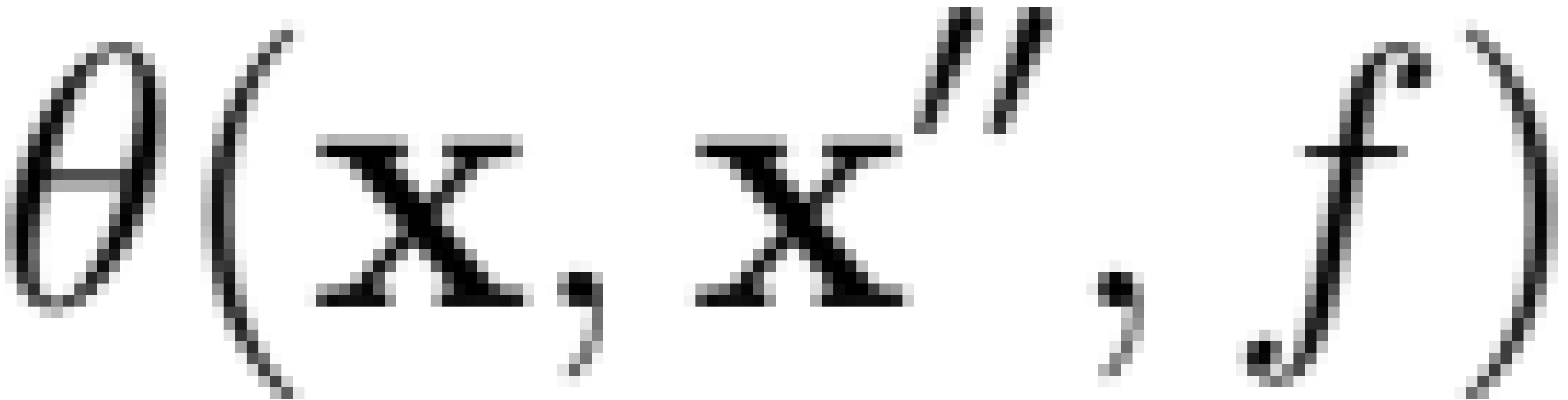


$\partial s(x')$

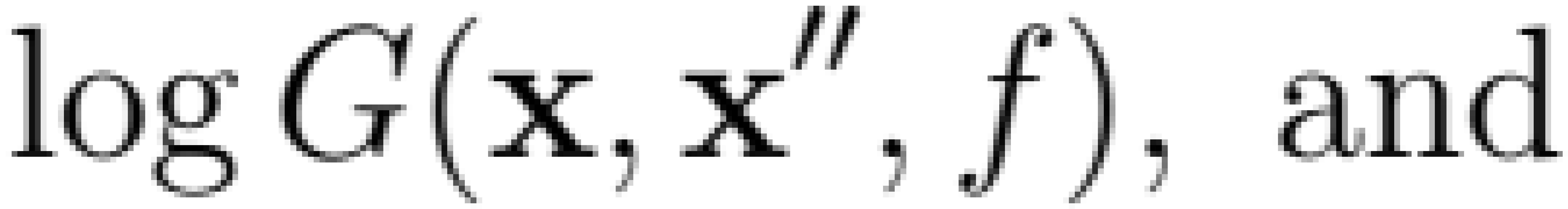
$$\int \int \int G(x, x', f) \omega(x') dx' =$$

$$as(x)$$

$$\int_{\mathbb{R}^d} \int_{\mathbb{R}^d} 8\pi^2 t^2 s(x') G(x', x'', t) \omega(x'', t) dx''$$







$$\frac{\partial \phi(x, x'')}{\partial s(x)} = G(x, x''; f)$$

$$\partial G(x, x'', f)$$

$$\partial s(x) \geq 0$$

$$\int \int \int \theta(x, x', f) G(x, x', f) u(x', f) dx' =$$
$$\int \int \int \theta(x, x', f) G(x, x', f) u(x', f) dx' =$$
$$\int \int \int \theta(x, x', f) G(x, x', f) u(x', f) dx' =$$

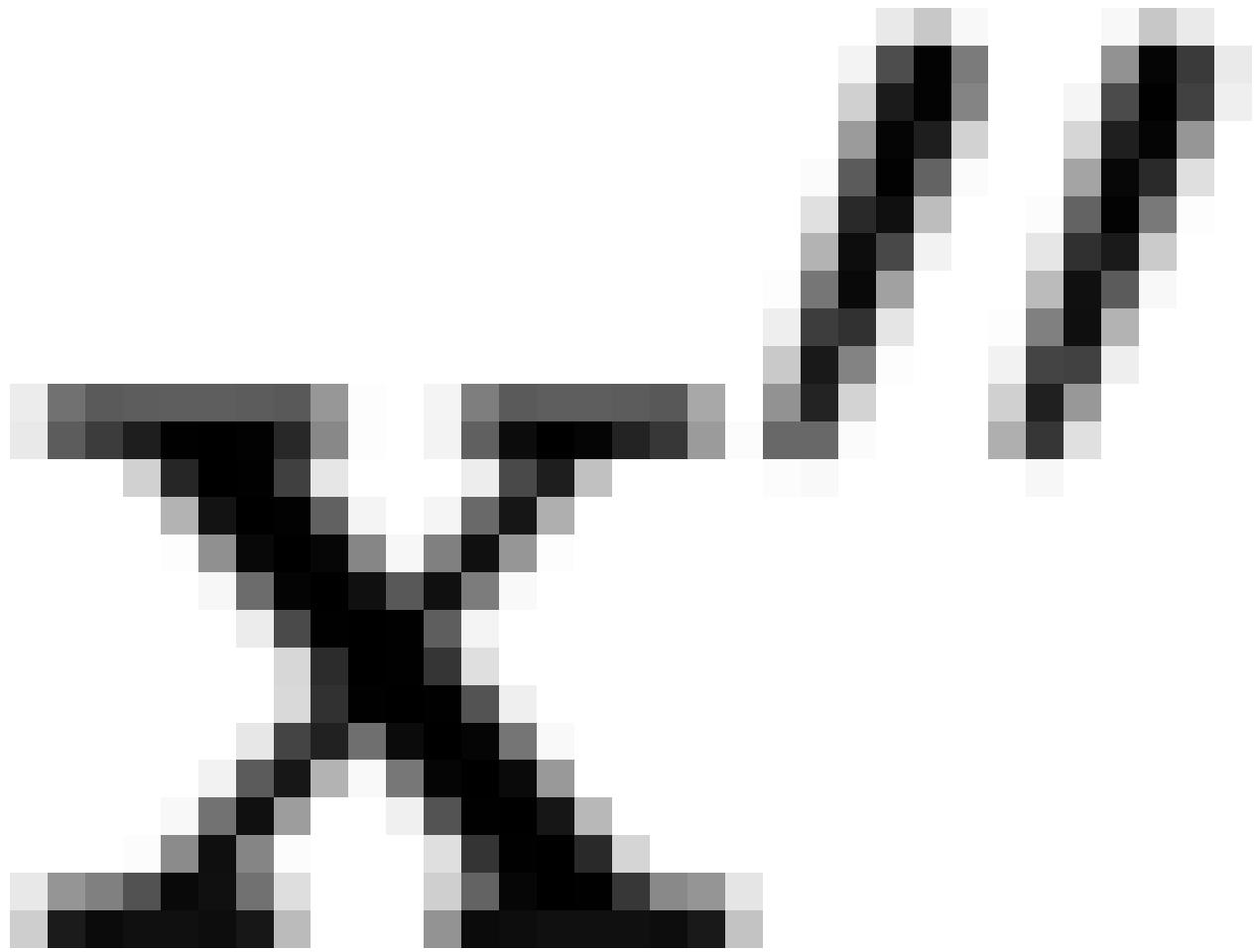
where

$$\partial\theta(x, x', f)$$

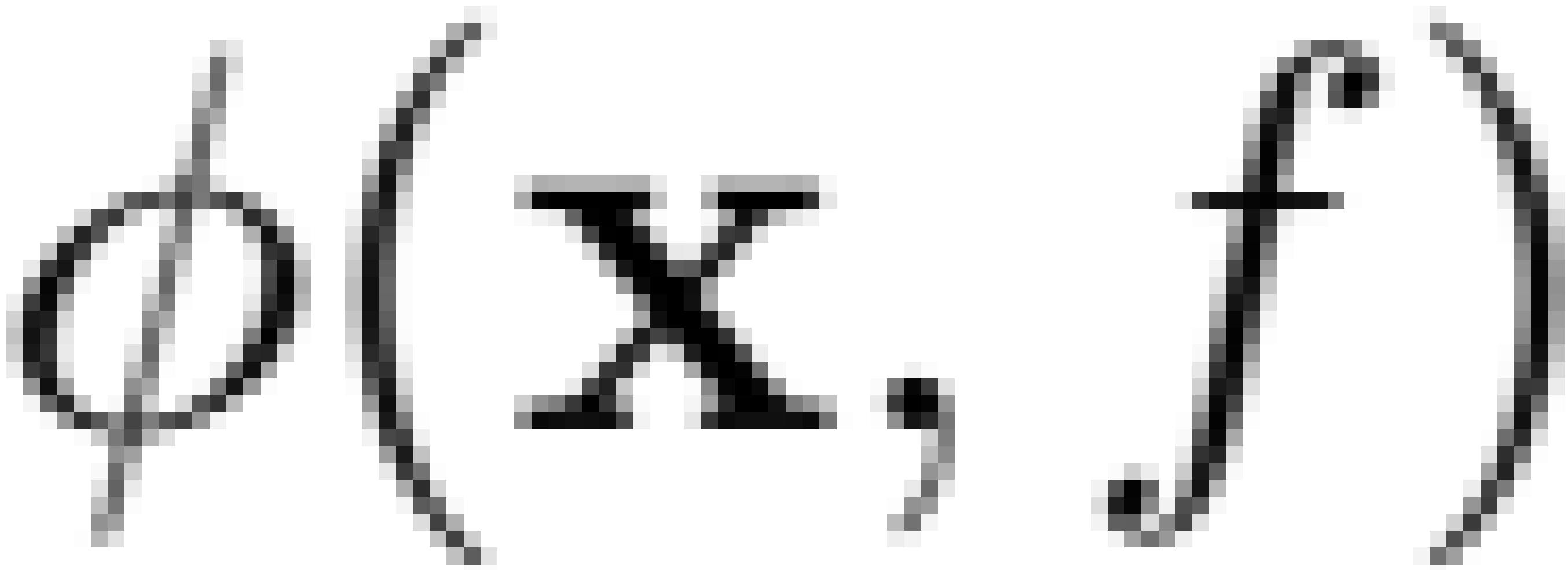
$$\partial s(x')$$

$$8\pi^2 f^2 S(x) \frac{G(x,x',f)}{\tau(x,x',f)} G(x',x'',f) - G(x,x'',f)$$











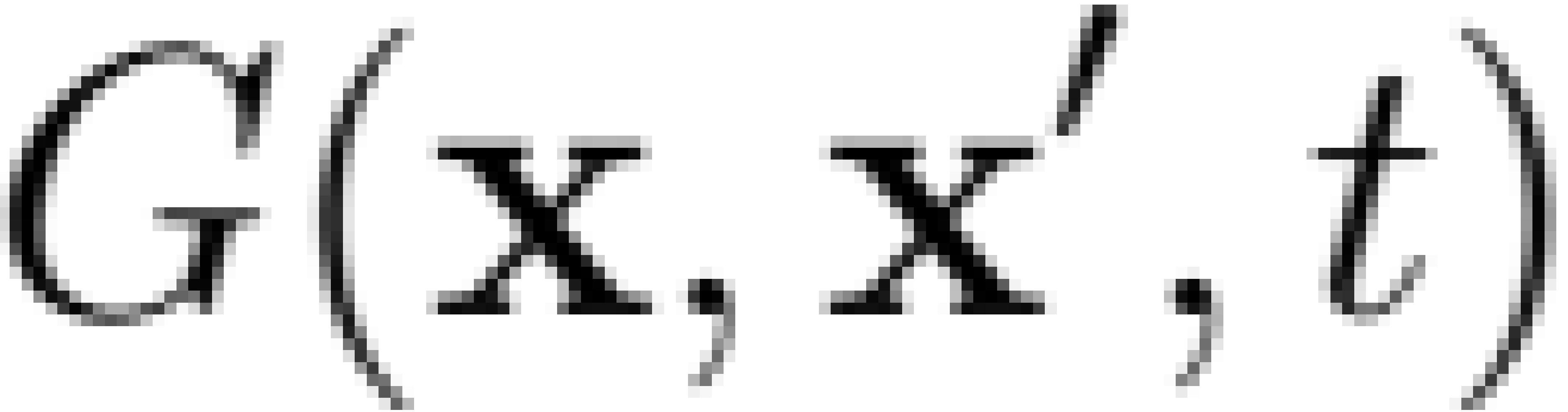
$\partial\phi(x, f)$

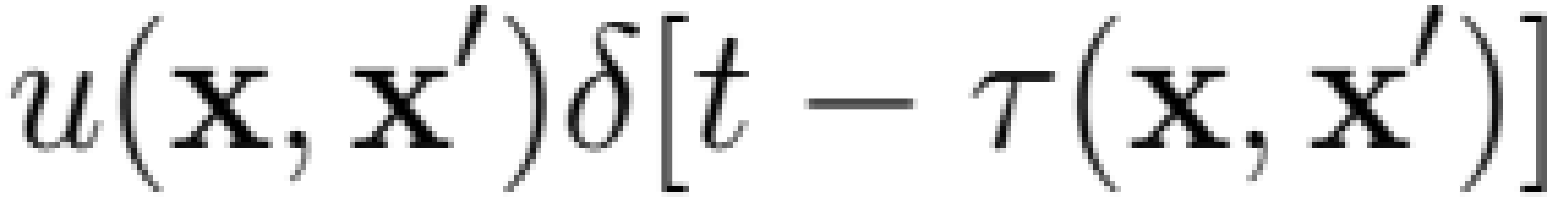


$\partial s(x')$

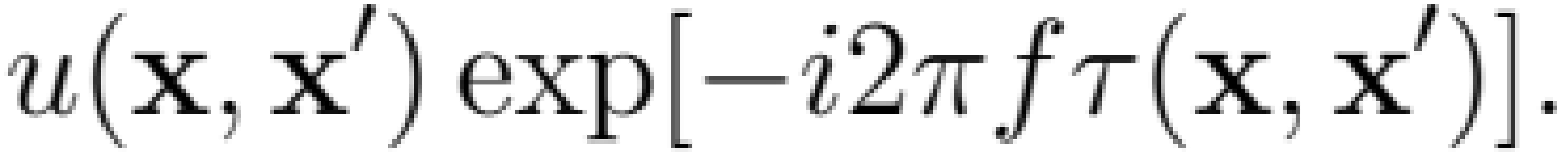
$$\frac{\int \int \int 8\pi^2 f^2 s(x') G(x',x'',f) G(x',x'',f) \omega(x'',f) dx''}{\int \int \int G(x,x''',f) \omega(x''',f) dx'''}$$

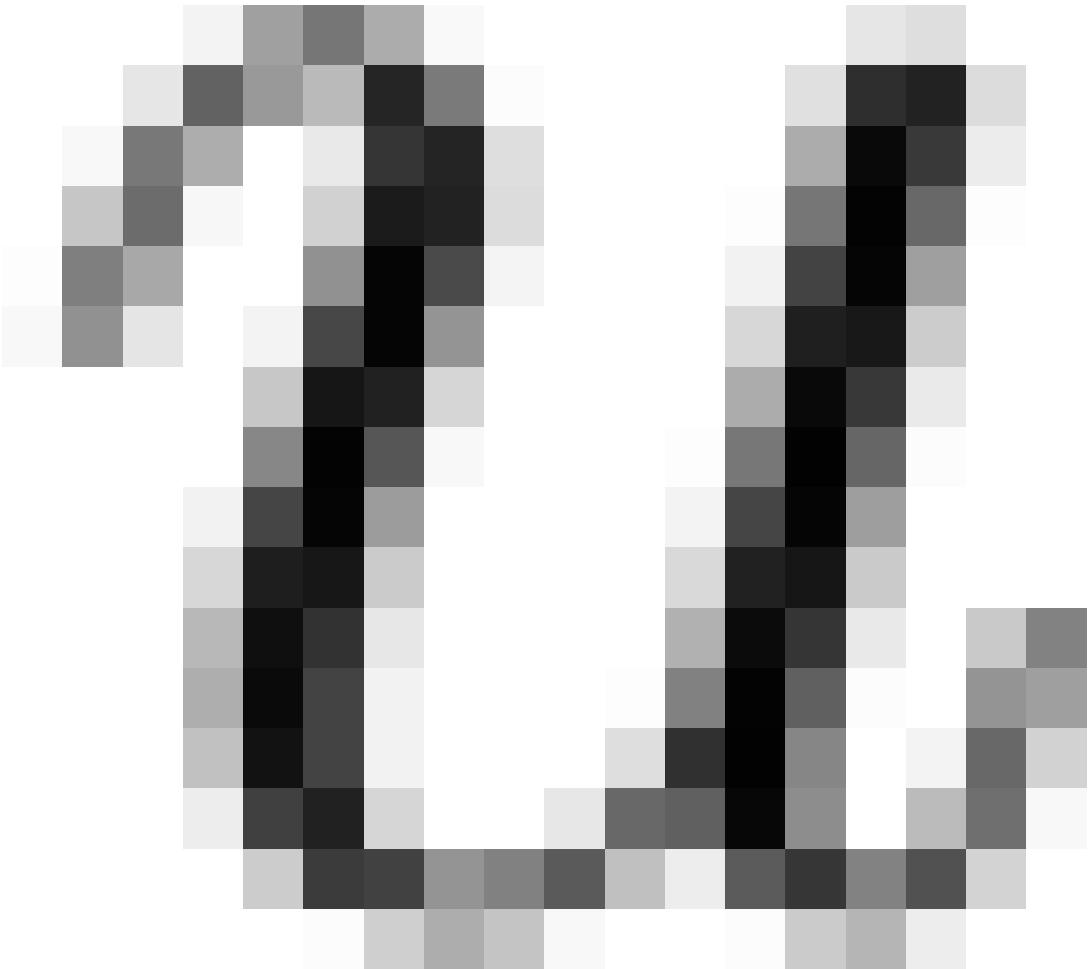


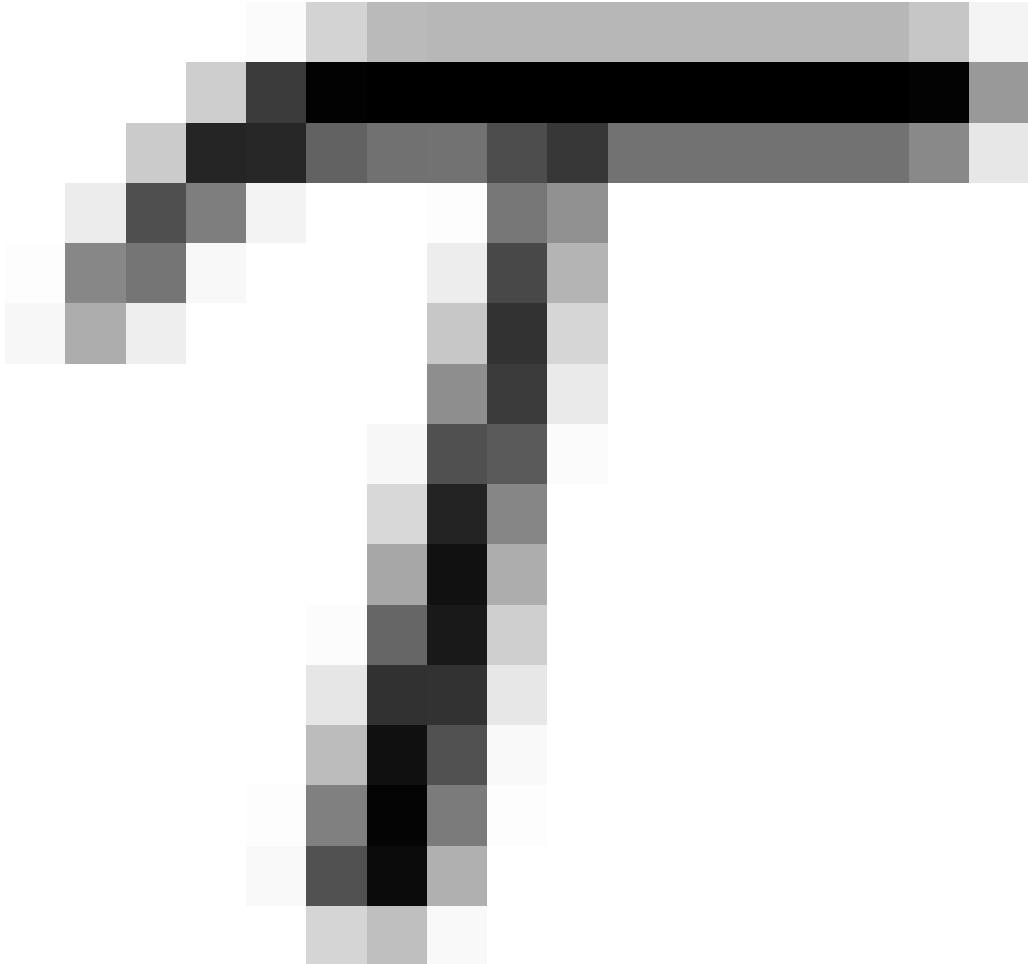




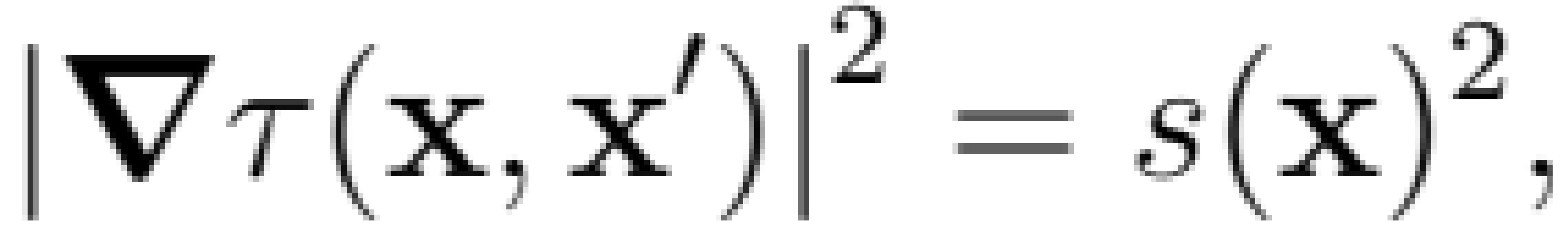






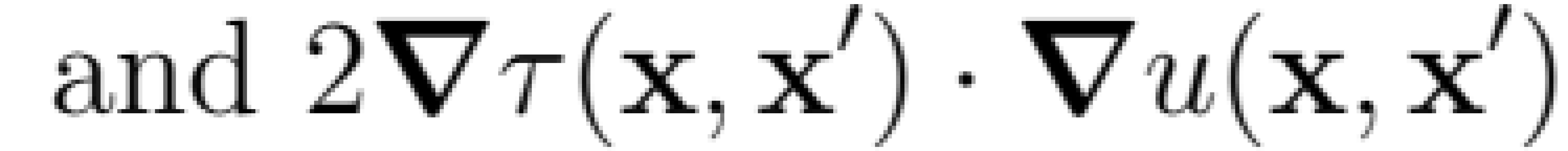


$$p(x, t) = \int_{\mathbb{R}^d} \int_{\mathbb{R}^d} u(x, x') w[x', t - \tau(x, x')] dx'.$$

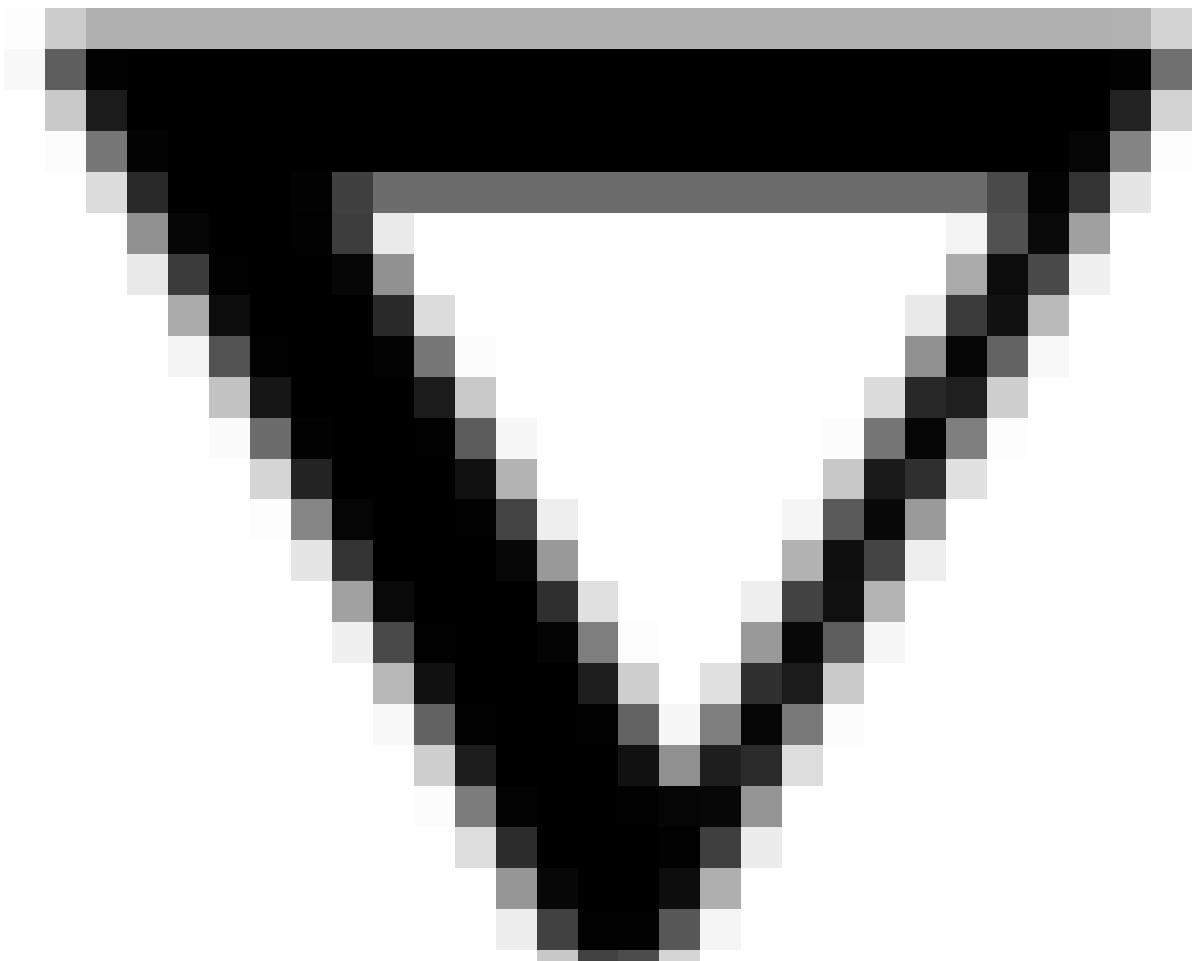




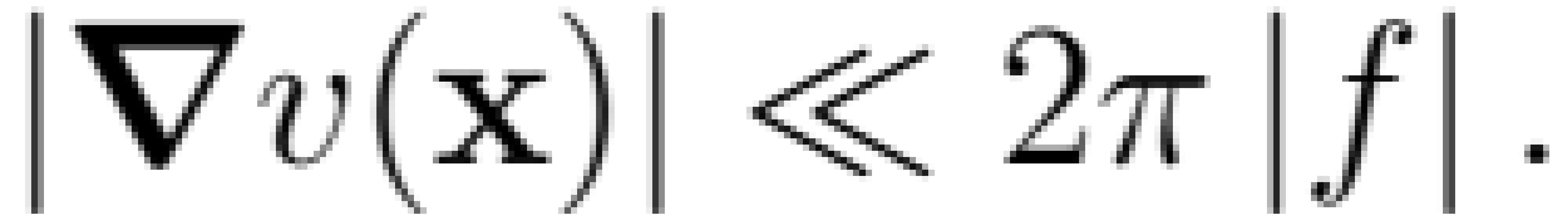












$\theta(x, x'', f)$

$s(x)$

$$8\pi^2 f^2 s(x) \frac{u(x, x') u(x', x'')}{u(x, x'')} = \exp\{-i2\pi f[\tau(x, x') + \tau(x', x'')]\},$$

$$\delta\theta(x, x'', t)$$

$$\delta s(x)$$

$$= -2s(x') \frac{u(x, x') u(x', x'')}{u(x, x'')} + \dot{s}[t - \tau(x, x')] + \tau(x', x''), \text{ and}$$

$$\delta G(x, x'', t)$$

$$\delta s(x')$$

$$-2s(x)u(x')\dot{u}(x,x')\delta[t-\tau(x,x')] + \tau(x,x')$$

$\hat{\phi}_p(x, t)$



$\hat{\phi}_s(x')$

$$\int \int \int \int \frac{\partial G(x, x'', t)}{\partial s(x)} u(x'') t - t' dx'' dt'$$

$$\int_{\mathcal{M}} \left(-2s(x') u(x, x') u(x'', x') \dot{w}[x', t] - \tau(x, x') \dot{w}[x', t] \right) dx''.$$

then $\varphi(x_0; f) = G(x_0; f)$

$$\int \delta(x, x_0, t - t') p(x, t') dt'$$
$$\delta s(x')$$

$$-2s(x) \frac{u(x, x') u(x', x_0)}{u(x, x_0)} \dot{p}[x, t - \tau(x, x_0)] + \tau(x, x_0)$$

$$-2s(x)u(x) \left[t - \gamma(x, x_0) \right] + \gamma(x, x_0) \dot{u}(x)$$

