Jon Allen
HW 24
Match the usual transform table result $f(t) = \frac{1}{\sqrt{\pi t}} - e^t \text{erfc}\left(\sqrt{t}\right)$

$$g(t) = e^t c_1 - e^t \text{erfc}(\sqrt{t}) - 1$$

$$g(t) = \int_0^t f(u)\,\mathrm{d}u$$

$$f(t) = \frac{1}{\sqrt{\pi t}} - e^t \text{erfc}\left(\sqrt{t}\right)$$

$$g(t) = \int_0^t \frac{1}{\sqrt{\pi u}} - e^u \text{erfc}\left(\sqrt{u}\right)\,\mathrm{d}u$$

$$= \left| \frac{\ln u}{\sqrt{\pi}} - e^u \text{erfc}(\sqrt{u}) + 2\frac{\sqrt{u}}{\sqrt{\pi}} \right|_0^t \quad \text{used maxima to integrate the second term}$$

$$= \frac{\ln t}{\sqrt{\pi}} - e^t \text{erfc}(\sqrt{t}) + 2\frac{\sqrt{t}}{\sqrt{\pi}} - \frac{\ln 0}{\sqrt{\pi}} + e^0 \text{erfc}(\sqrt{0})$$