

Homework due Aug 25 - extra problems

1. It can be shown that

$$\int_0^\pi \cos^2(x) dx = \pi/2 \quad (1)$$

Use this fact to find

$$\int_0^{2\pi} \cos^2(x/2) dx \quad (2)$$

2. Let

$$G(t) = \int_0^{1/t} \sin(\pi t^2 x^2) dx \quad (3)$$

Show that $G(t) = c/t$ for some number c . (You don't have to find c .)