HW 5

The Wave Equation.

Do problems 23 and 24 at the end of Chapter 2 from the text and the following problem.

Assume $f(x,t) = 1$ if $|x| \leq 1, 0 \leq t \leq 1$ and $f(x,t) = 0$ otherwise. Let u solve

$$u_{tt} - \Delta u = f \text{ for } t > 0, x \in \mathbb{R}^n,$$
$$u(x,0) = 0 \text{ for } x \in \mathbb{R}^n.$$
$$u_t(x,0) = 0 \text{ for } x \in \mathbb{R}^n.$$

Find $u(0,t)$ for $t > 2$, for n=1, 2, and 3.