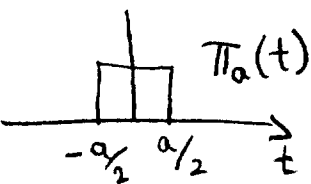
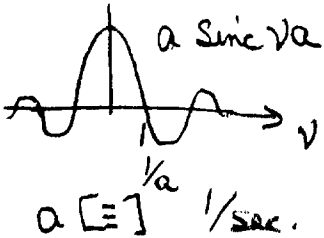
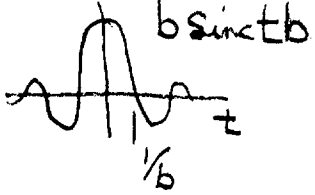
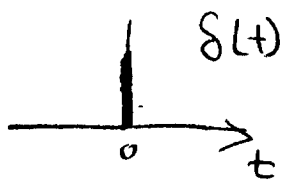
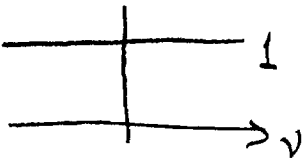
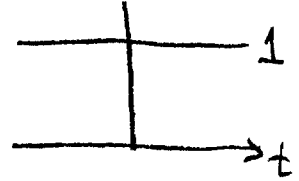
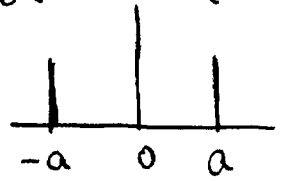
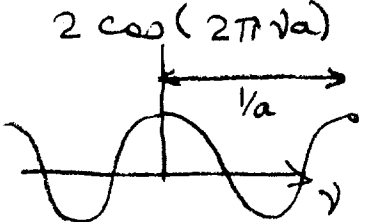
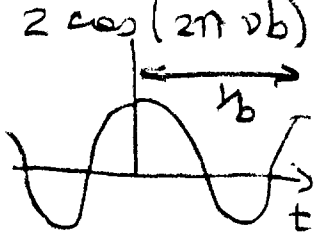
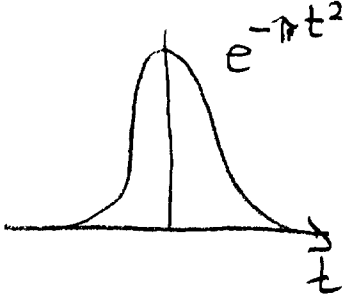
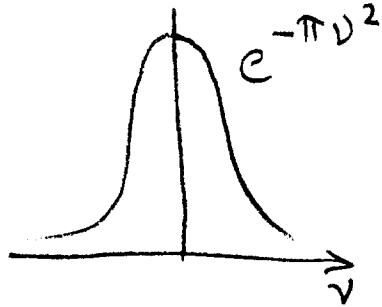
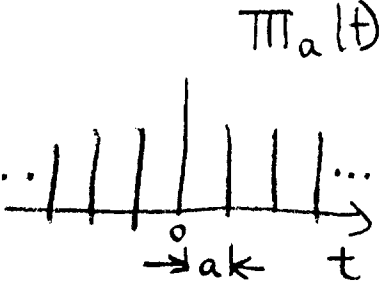
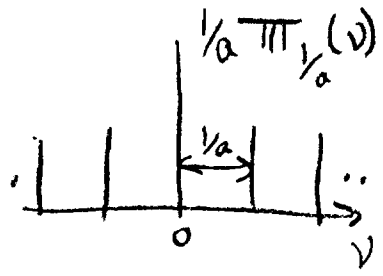
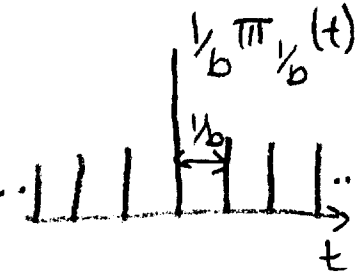


5.1 Show that if  $f(t) \hat{=} g(\nu)$ , then  $g(t) \hat{=} f(\nu)$  if  $f$  and  $g$  are even functions.

5.2 Show that  $e^{-\pi t^2} \hat{=} e^{-\pi \nu^2}$ .

5.3 Using 5.1 and the transforms developed in the course notes thus far, complete the following table of Fourier Transforms:

$f(t) \Rightarrow F(\nu)$	$f(t) \Rightarrow F(\nu)$
 $\Pi_a(t)$ $-a/2$ $a/2$ $t$	 $a \text{ sinc } \nu a$ $a [\equiv] \text{ 1/sec.}$ $1/a$ $\nu$
 $b \text{ sinc } \nu b$ $1/b$ $\nu$	<p>?</p> <p><math>b [\equiv] ?</math></p>
 $\delta(t)$ $0$ $t$	 $1$ $\nu$
 $1$ $t$	<p>?</p>
 $\delta(t+a) + \delta(t-a)$ $-a$ $0$ $a$ $t$	 $2 \cos(2\pi \nu a)$ $1/a$ $\nu$
 $2 \cos(2\pi \nu b)$ $1/b$ $\nu$	<p>?</p>
 $e^{-\pi t^2}$ $t$	<p>?</p>
 $e^{-\pi \nu^2}$ $\nu$	<p>?</p>
 $\text{III}_a(t)$ $0$ $a$ $t$	 $1/a \text{ III } 1/a(\nu)$ $1/a$ $\nu$
 $1/b \text{ III } 1/b(t)$ $1/b$ $t$	<p>?</p>