Formulae and properties of Laplace Transform

$f(t)$	$L[f(t)]$
1	$1/s$
k	k/s
e^{at}	$\frac{1}{s-a}$
e^{-at}	$\frac{1}{s+a}$
$\sin at$	$\frac{a}{s^2+a^2}$
$\cos at$	$\frac{s}{s^2+a^2}$
$\sinh at$	$\frac{a}{s^2-a^2}$
$\cosh at$	$\frac{s}{s^2-a^2}$
t^n	$\frac{\lfloor n+1}{s^{n+1}}$

If $L[f(t)] = \phi(s)$ Then

1) change of scale - $L[f(at)] = \frac{1}{a}\phi(\frac{s}{a})$

2) First shifting - $L[e^{at} f(t)] = \phi(s-a)$

3) second shifting - $L[f(t-a)] = e^{-as}\phi(s)$

4) multiply by t - $L[t^n f(t)] = (-1)^n \frac{d^n}{ds^n}(\phi(s))$

5) division by t - $L[\frac{1}{t} f(t)] = \int_s^\infty \phi(s)\,ds$

6) derivative - $L[f'(t)] = -f(0) + s\phi(s)$

7) Integral - $L[\int_0^t f(t)\,dt] = \frac{1}{s}\phi(s)$

8) Evaluate $\int_0^\infty e^{-st} f(t)\,dt$

find s, find $f(t)$ & solve by Laplace.