LAPLACE TRANSFORMS WORKSHEET

Use the table of Laplace Transforms to find the missing information in table below.

$\boldsymbol{y(t) = \mathcal{L}^{-1}\{F(s)\}}$	$\boldsymbol{F(s) = \mathcal{L}\{y(t)\}}$
$t^4 + 6t + 3$	
	$\frac{1}{s+4}$
$\sqrt{t} + 6\sqrt{t^3}$	
	$\frac{6s-2}{s^2+4}$
$3u(t) - (t-3)u_3(t)$	
	$\frac{s^2-9}{(s^2+9)^2}$
$\delta(t-2)$	
	$\frac{1}{s^7} - \frac{3}{s^2}$
$t^2 \sin t + t^3 e^t$	
	$\frac{16}{(s^2+1)^2}$
$\frac{\cos(t)}{t}$	
	e^{-4s}
$\int_0^t e^u \sin 3u \, du$	
	$\int_s^\infty \sin 4t \, dt$
$e^{3t} + 6e^{-2t}$	
	$\frac{3s-2}{(s+1)^2+4}$
$\cos t + 4t \cos 2t$	
	$\frac{e^{-3s}s}{s^2+1}$
	e^{-3s-9}
$\sin(4t - \pi)$	
	$\frac{2s+1}{s^2-4}$

$\sinh t \sin 3t$	
	$\frac{2}{s(s^2+3)}$
	$\arctan\left(\frac{4}{s}\right)$
$\int_0^t e^{t-\tau} \sin\tau \, d\tau$	
	$e^{-2\sqrt{s}}$
	$\frac{s^2+1}{(s^2-1)^2}$
	$\frac{1}{s(s+2)^2}$
$2y'' + 6y' + 11y = e^{-4t}$ $y(0) = 1, y'(0) = 2$	
	$\frac{s}{s^2-5s+6}$
$t - 3u(t) - (t^2-3)u(t-2)$	