3. [13 points] Use the table and the fact that

$$\int_0^{10} f(t)dt = 350$$

to evaluate the definite integrals below exactly (i.e., no decimal approximations). Assume $f'(t)$ is continuous and does not change sign between any consecutive t-values in the table.

t	0	10	20	30	40	50	60
$f(t)$	0	70	e^5	e^3	0	$\pi/2$	π

a. [4 points] $\displaystyle\int_0^{10} tf'(t)dt$

b. [4 points] $\displaystyle\int_{20}^{30} \frac{f'(t)}{f(t)}dt$

c. [5 points] $\displaystyle\int_{50}^{60} f(t)f'(t)\sin(f(t))dt$