6. [8 points]

Values of a function f and some of its derivatives are given in the table on the right. Use this information to answer the questions that follow.

x	0	π
$f(x)$	-6	2π
$f'(x)$	6	2
$f''(x)$	1	-3
$f'''(x)$	-1	0
$f''''(x)$	5	$-9/2$

a. [4 points] Find a formula for the Taylor polynomial of degree 4 for f about $x = \pi$.

b. [4 points] Find the first three nonzero terms of the Taylor series for $\displaystyle\int_0^x f(t^2)\, dt$ about $x = 0$.