

Extra BC Practice

x	-1	0	1	2	3
f(x)	2	4	-3	2	0
f'(x)	3	-3	2	1	2
f''(x)	5	2	0	3	1
f'''(x)	-4	-1	7	9	1

a. Find $\int_0^3 2xf^3(x) dx$

b. Write the third degree Taylor polynomial for f about $x=2$ and use it to approximate $f(2.1)$.

c. If $g(x) = \int_0^{\sin(x)} f(t) dt$, find the value of $g'(0)$. Then find the value of $g''(0)$.

d. If $h(x)=xf(x)$, write the first four terms of the Taylor polynomial for $h(x)$ about $x=0$.

e. Use Euler's method starting at $x=2$ with two steps of equal size to approximate $f(4)$. Show the work that leads to your answer. For f , it is known the derivative is a function ONLY of x .

f. If $j(x) = f'(x) + \frac{2}{x^2+5x+6}$, evaluate $\int_0^2 j(x) dx$.