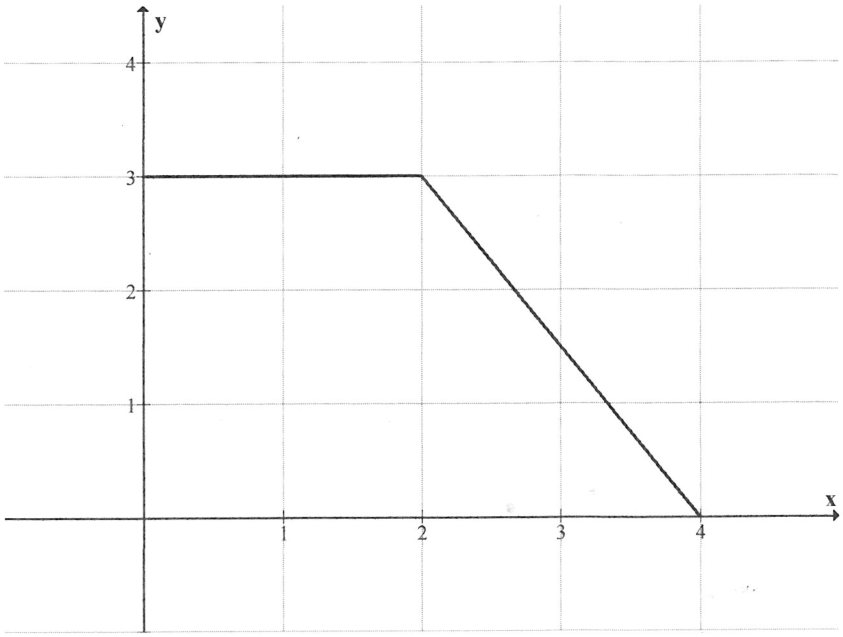
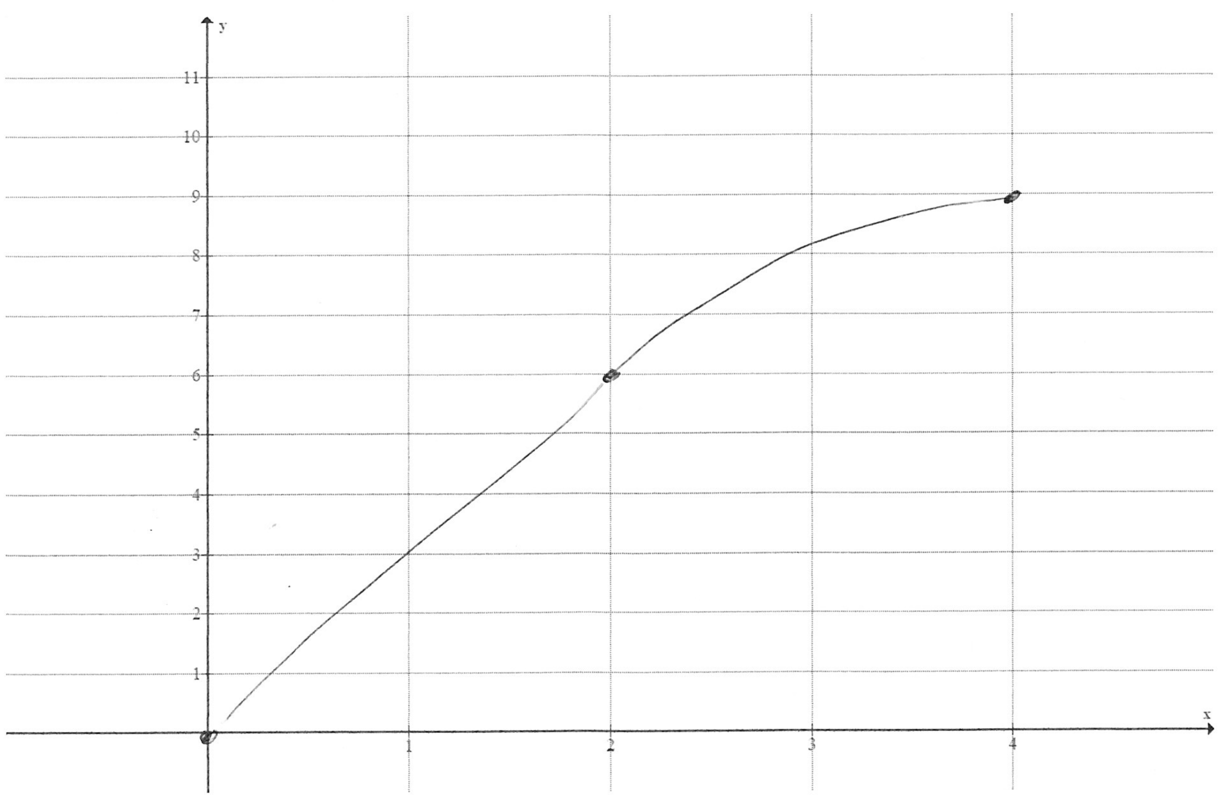
Calculus Study Guide: section 5.4

Let A(x) = $\int_0^x f(t)dt$ for f(x) shown below. Calculate A(0), A(2) and A(4).

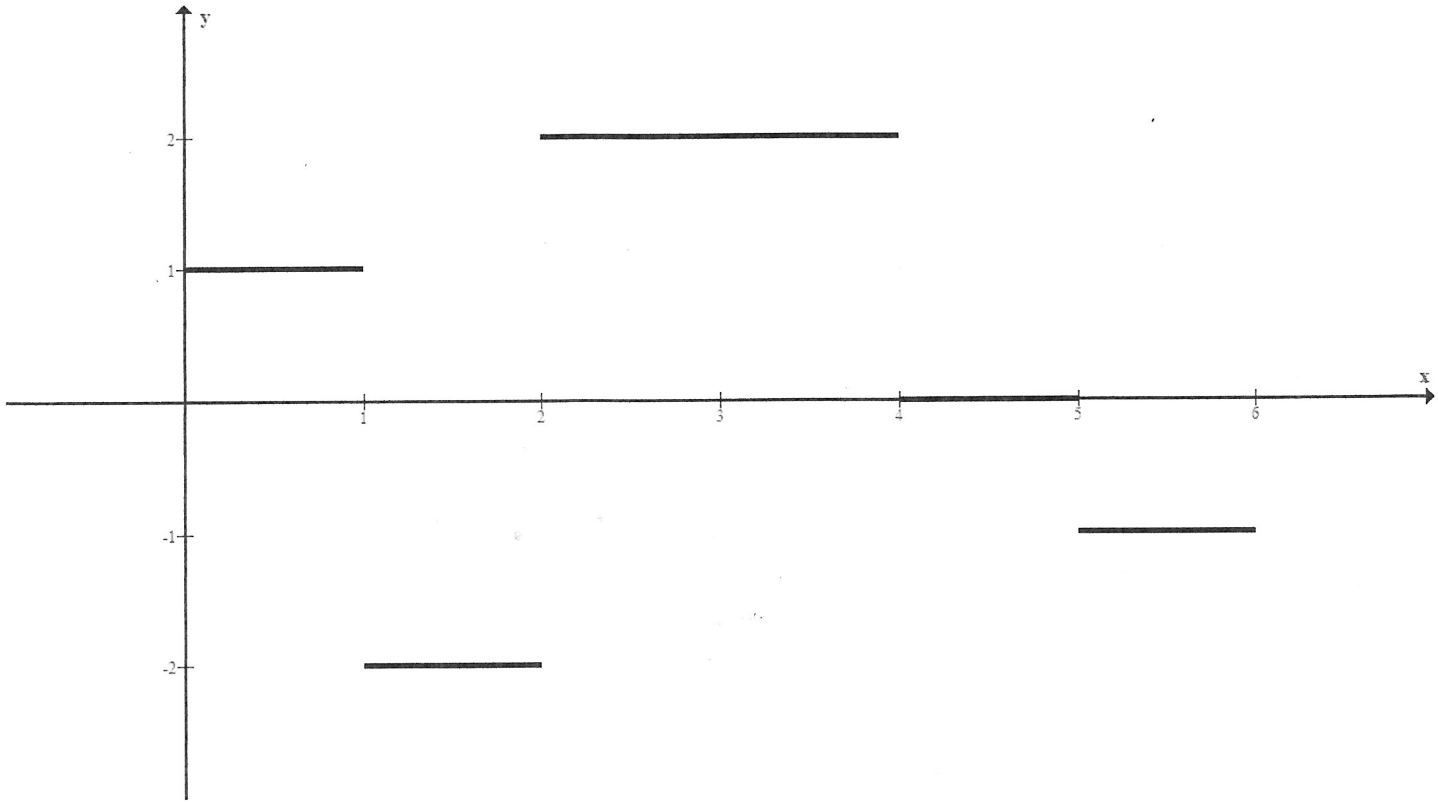


A(0) = 0 A(2) = 6 A(4) = 9

Sketch the graph of A(x):



The graph below shows g(x), and A(x) = $\int_0^x g(t)dt$. Calculate A(0), A(2), A(4), A'(2.5) and A'(4.5).



A(0) = 0

A(2) = −1

A(4) = 3

A'(2.5) = 2

A'(4.5) = 0

Evaluate:

$$\frac{d}{dx}\int_{1}^{x} tan^3 t\, dt$$ $\tan^3 x$

$$\frac{d}{dx}\int_{1}^{x^2} tan^3 t\, dt$$ $\tan^3 x^2 \cdot 2x$

Given that G(x) = $\int_{0}^{x} 2\cos 2t\, dt$, find:

a. G(0)

answer: 0

b. G($\frac{\pi}{4}$) $\int_0^{\pi/4} 2\cos 2t = \sin 2t \Big|_0^{\pi/4} = \sin \pi/2 - \sin 0 = 1$

answer: ______________________

c. G'(0) $= f(0) = 2$

answer: ______________________

d. $G'(\frac{\pi}{4})$ $= f(\pi/4) = 2\cos 2(\pi/4) = 0$

answer: ______________________