

*We are lean, mean, integration machines! Do the following problems in your notebook and then transfer your solutions to the table.*

<i>Integral</i>	<i>Solution</i>
$\int f'(x) dx$	
$\int_3^7 g'(x) dx$	
$\int [h'(x) + 13] dx$	
$\int \sin x dx$	
$\int_0^{\frac{\pi}{4}} \sec^2(x) dx$	
$\int_{-2}^{10} [3x^2 + 2x + 1] dx$	
$\int_{10}^{-2} [3x^2 + 2x + 1] dx$	
$\int_0^{2\pi} \cos \theta d\theta$	
$\int (\sin^2 \theta + \cos^2 \theta) d\theta$	
$\int \sqrt{x} (\sqrt{x} + 1) dx$	
$\int \frac{x^2 - 2x}{x} dx$	
$\int_2^4 \frac{1}{x^2} dx$	
$\int_1^5 f''(x) dx$	



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$$\frac{d}{dx} \int_1^x f(t) dt$$


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$$\int_{\pi}^x \cos t dt$$

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$$\frac{d}{dx} \int_{\pi}^x \cos t dt$$

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Let  $g(x) = \int_3^x f(t) dt$ . Find  $g(3)$

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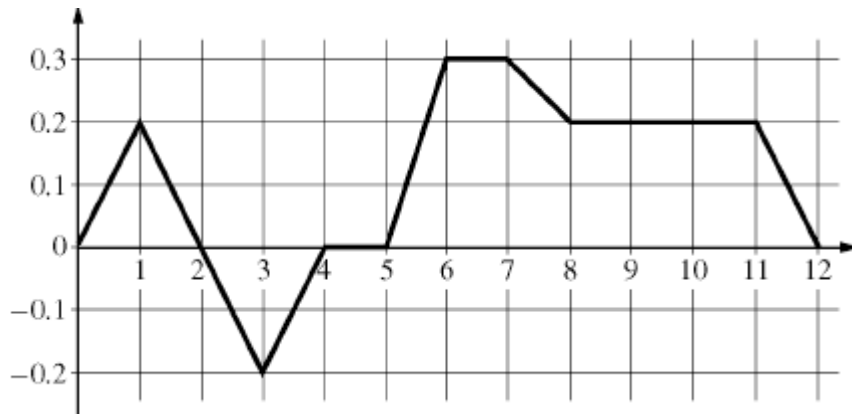
$$f(3) + \int_3^7 f'(x) dx = ?$$


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$t$ [seconds]	0	8	20	25	32	40
$v(t)$ [m per sec]	3	8	-10	-8	-4	7

Estimate  $\int_0^{40} v(t) dt$  using a Right Riemann Sum

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Graph of  $f$

Let  $f$  be the function shown above. The function  $g$  is defined by  $\int_0^x f(t) dt$

Find:  $g(0)$ ,  $g(4)$ ,  $g(12)$

Find  $g'(x)$

Write the equation of the line tangent to the graph of  $g$  at  $x = 1$