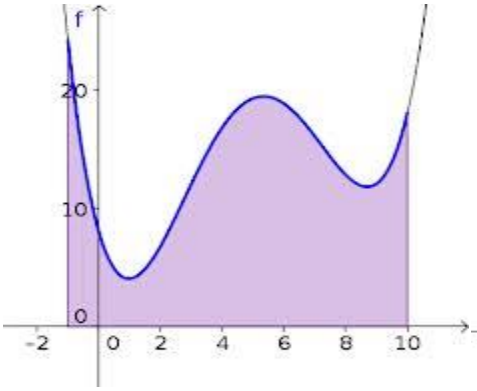
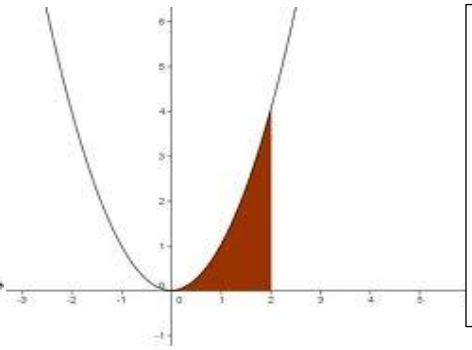
Area by antiderivatives. Name _____

We are assuming the hypothesis that the area under the curve y=f(x) from x=a to x=b may be found by F(b)-F(a), where F(x) is an anti-derivative of f(x).





To the left are two pictures of area under curves. The area is between the two vertical lines x=a and x=b, the x-axis below, and the curve above.

Here are some problems to do, making the hypothesis below.

In each problem, find the area under the curve between the x-values a and b given.			
	Problem	Work	Answer
1	$f(x) = x^3$; a=1,b=5.		
2	f(x) = cos(x); a = 0, b = π/2		
3	f(x) = sin(x); a=0, b = π/2		
4	$f(x) = (x)^{1/2}$; a=1,b=5.		
5	f(x) = 1/x; a = 1, b = 10		
6	f(x) = 1/x; a = 1, b = ∞		
7	$f(x) = x^{-2}$; a = 1, b = ∞		
8	f(x) = sec(x) tan(x); a= π/6,b= π/4		
9	$f(x) = 3x^2 - 4x^{-2}$; a=1, b = 3		
10	$f(x) = \sec^2(x)$; a= π/6, b = π/4		