Name: _____

CLASSWORK 102

Find the antiderivative of each function.

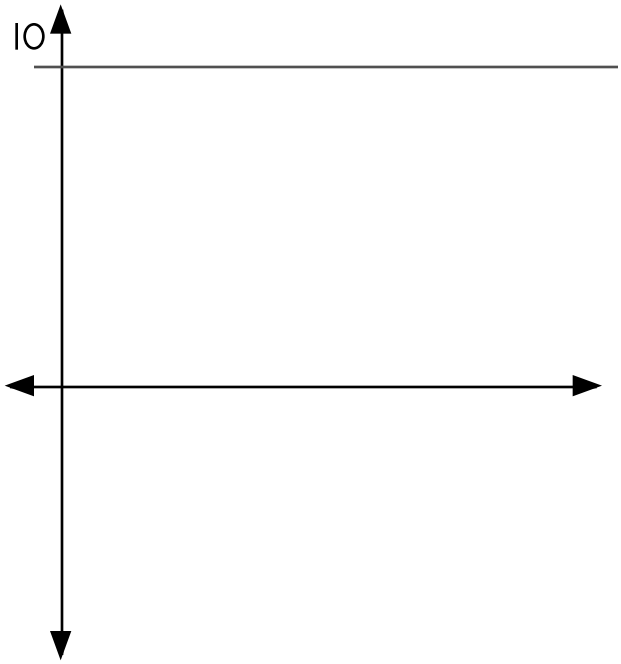
1. $y = 5x^{-3} + \cos(2x)$

2. $y = \dfrac{2 \sin x}{\cos^4 x}$

3. $y = \sin x \cos x$

4. Fill in the chart for the function $y = 10$

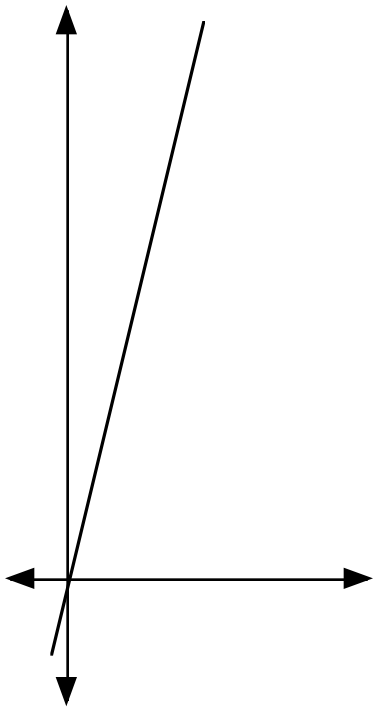
x	y	A(x)	Δ A(x) (between the two values)
0			
1			
2			
3			
3.5			
4			
4.5			
4.6			
4.7			
4.8			



How could we express the change in area between any two x values?

5. Fill in the chart for the function $y = 6x$

x	y	A(x)	Δ A(x) (between the two values)
1			
2			
3			
3.5			
4			
4.5			
4.6			
4.7			
4.8			
4.81			
4.82			
4.821			

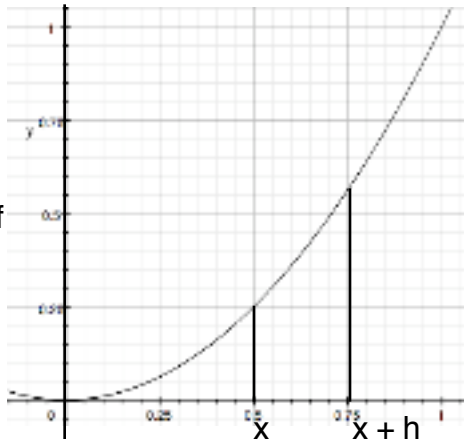


What happens to Δ A(x) as we take smaller and smaller intervals of x?

6. Let's remind ourselves of how we got the derivative....

a) What is a derivative? (What does it tell us about a function?)

b) Use the formal "limit" definition of a derivative to find the derivative of $y = x^2$



7. What happens to the $\Delta A/\Delta x$ as Δx approaches 0 ?

8. Find the area under the curve $y = \sqrt{x}$ from 0 to 5.