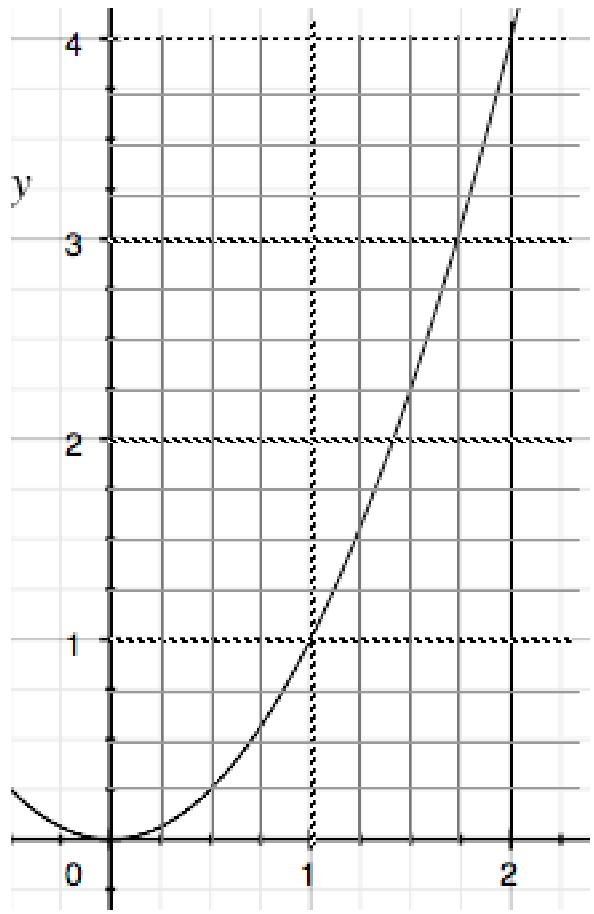
Find the antiderivative of each function.

2. $y = 4x^{-5}$

3. $y = \dfrac{\cos x}{x} - \sin x \ln x$

4. $y = e^{5x - 2}$

5. a) Estimate the area under the curve $y = x^2$ from 0 to 2 by counting squares on the graph below. Each large square is 1, each small square is 1/16.



Number of large (1) squares : _____

Number of 1/16 squares: ______

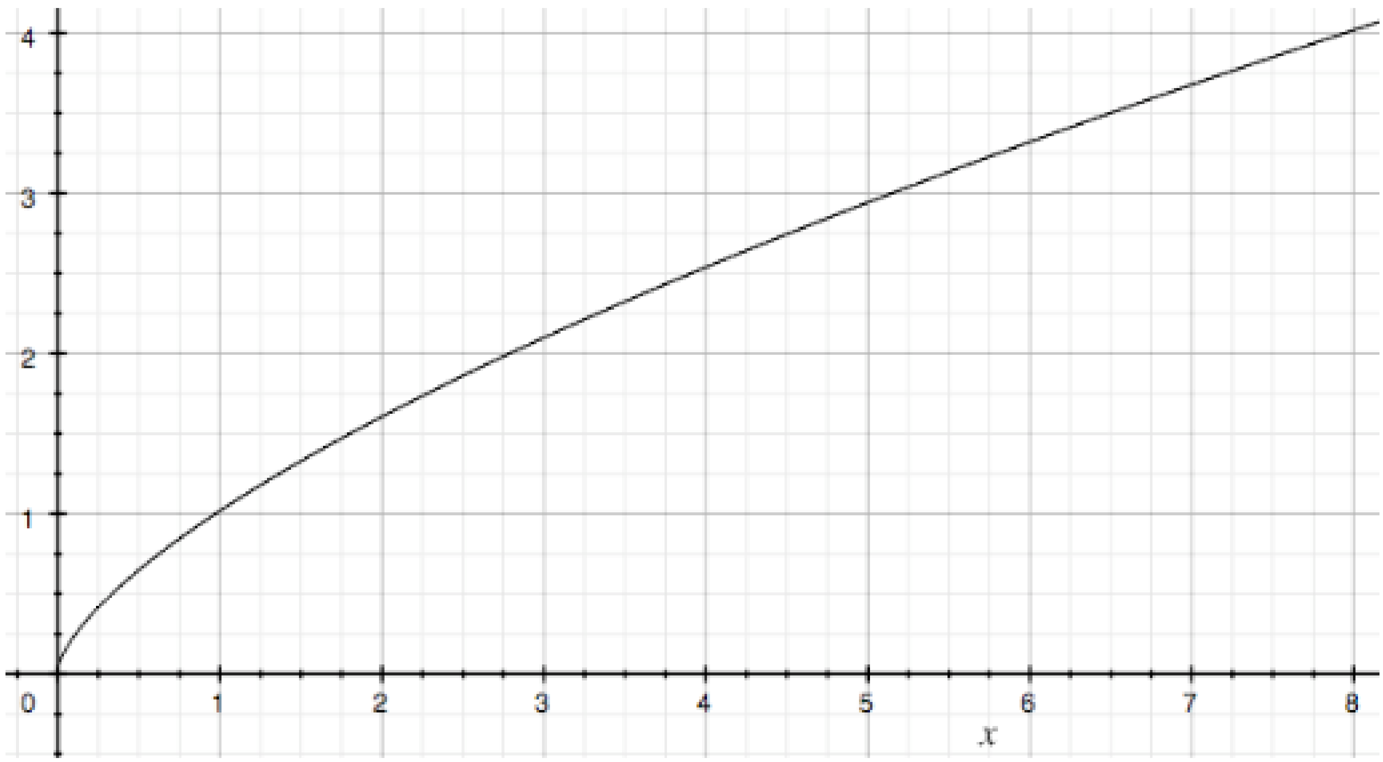
Total area :

b) Find the **exact** area of this region by using calculus.

c) How far along the x axis would you have to go to have an included area of exactly 1?

6. Use calculus to find the area under the curve $y = \sqrt{x}$ from 0 to 4.

7. Use calculus to find the area under the curve $y = x^{2/3}$ from 0 to 8.

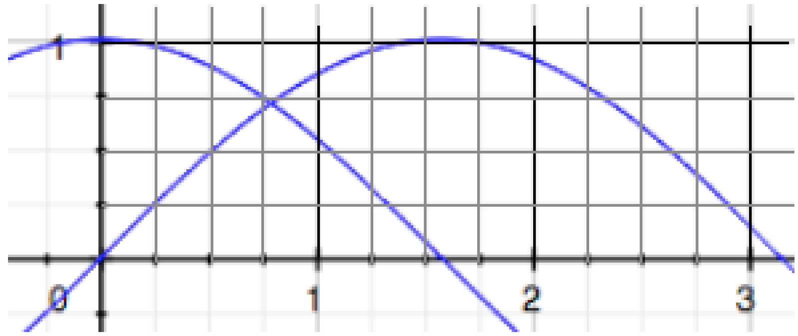


Does your answer seem reasonable based on the graph above?

8. a) Use calculus to find the area under the curve $y = x^{2/3} + 2$ from 0 to 8.

b) Compare your answer to the answer in #4. What effect does the intercept have?

9. a) Find the area under the curve $y = \sin x$ from 0 to π.



What is going on here?

b) Find the area under the curve $y = \cos x$ from 0 to $\pi/2$.

c) Explain the relationship between (a) and (b).

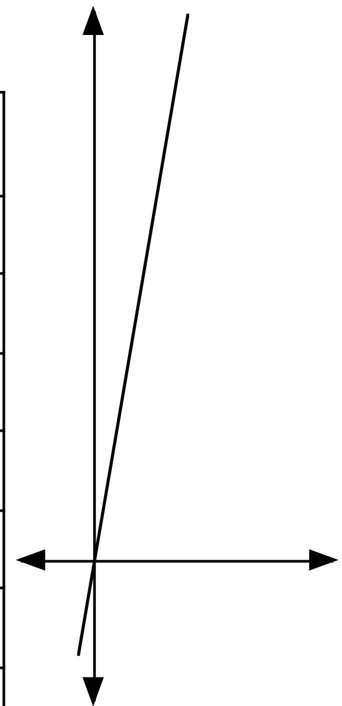
d) Find the area under the curve $y = \sin x$ from 0 to 2π. How could this answer make sense?

Name: ____________________________

CLASSWORK 103

1. a) Fill in the chart for the function $y = 8x$

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



b) What happens to Δ A(x) as we take smaller and smaller intervals of x? Why does this make sense?

c) Let's remind ourselves of how we got the derivative.... What is a derivative? (What does it tell us about a function?)

d) Why must the antiderivative give us area?