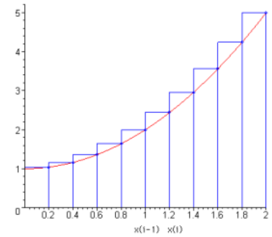
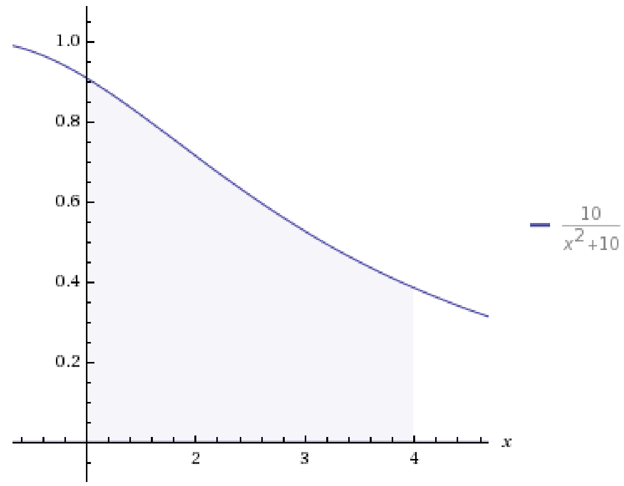
Riemann Sum = Super Fun!



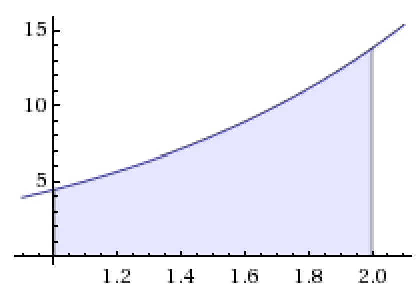
1. Find the approximate area under the function $y = \frac{10}{10+x^2}$, from $x = 1$ *to* $x = 4$
   (Use 6 rectangles; n=6)
   (<u>answer</u>: around 1.75ish)



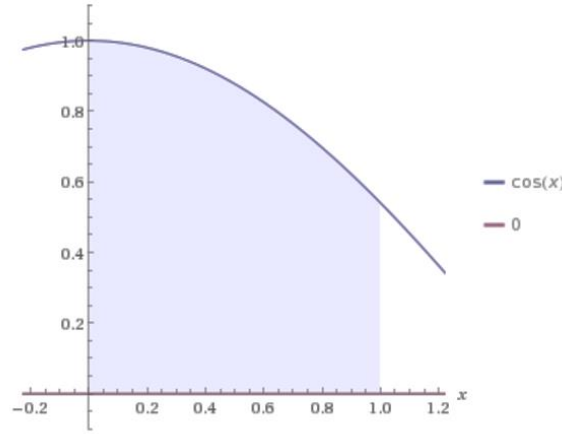
2. Use a Riemann sum to estimate the area between $f(x) = 0.25x^3$ and the x-axis along the interval [4,7] Use four rectangles.
   Before you start: use a graphing utility or the internet to sketch the area you are trying to find…no sketch…no marks
   (answer: 161.38 ish)

3. Compute the approx. area between $f(x) = \sin x$ and the x-axis from 0 to π. Use $n=5$. **Draw a sketch of this area**.
(answer:1.93ish)

4. Find the approx area below $y = 2e^x - 1$ from 1 to 2. Use $n = 4$.
(*answer: 9.56)*



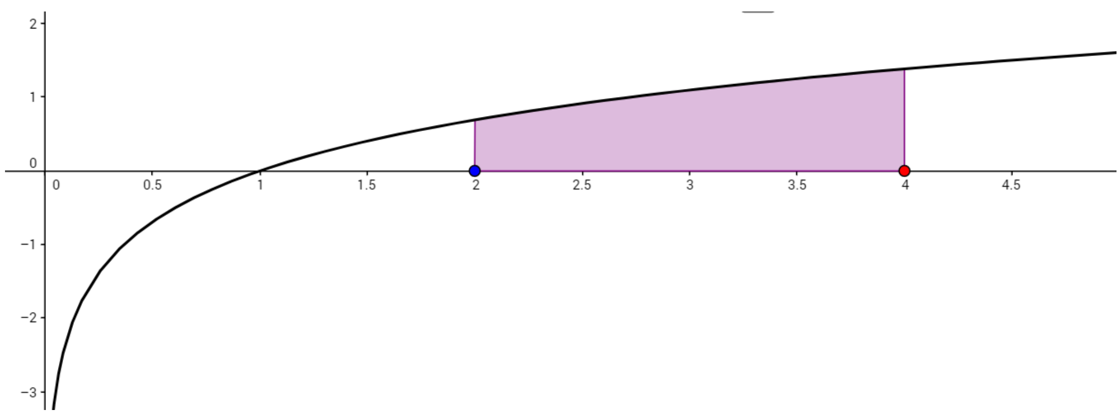
5. Find the area under the function *cos x* from (0 to 1). Use 4 rectangles.
   (Answer: 0.78)



6. Find the area under ***ln x*** from 2 to 4 using the following methods:

   a) First just look at the graph and estimate the area
   b) Use a Riemann sum with 3 rectangles
   c) Use a Riemann sum with 6 rectangles
   d) Use a Riemann sum with 9 rectangles

   Show all your work.



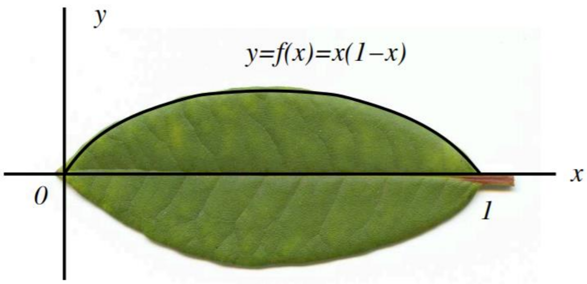
Answer is approx. 2.16 unit²

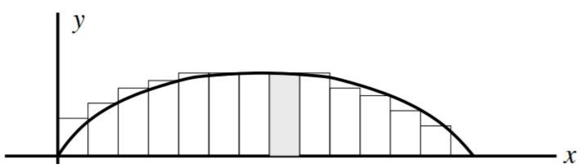
7. Find the area under $f(x) = 2/(1+x)$ *from 1 to 2* with $n=6$
Draw a sketch.

Answer: 0.78

Bonus: (1 mark each)

1. Find the area of the leaf shown below given that the top edge of the leaf adheres to the function *f(x)* shown in the diagram (**use 14 rectangles**). Answer: approx, 1/3 units^2 (note: you will have to double the area you initially find (leaf is symmetrical over x-axis).





2. Determine the area that is enclosed between the functions $f(x) = e^x$ and $f(x) = x$

Between 0 and 1 use n = 5