Antiderivatives

While working in a group make sure you:

- Expect to make mistakes but be sure to reflect/learn from them!
- Are civil and are aware of your impact on others.
- Assume and engage with the strongest argument while assuming best intent.

1. Find an antiderivative for each of the following functions:

   (a) $f(x) = x^2$

   (b) $g(x) = x^3$

   (c) $h(x) = x^4$

   (d) $\alpha(x) = x^{-2}$

   (e) $\beta(x) = x^{-3}$

2. Find *the* antiderivative for each of the following:

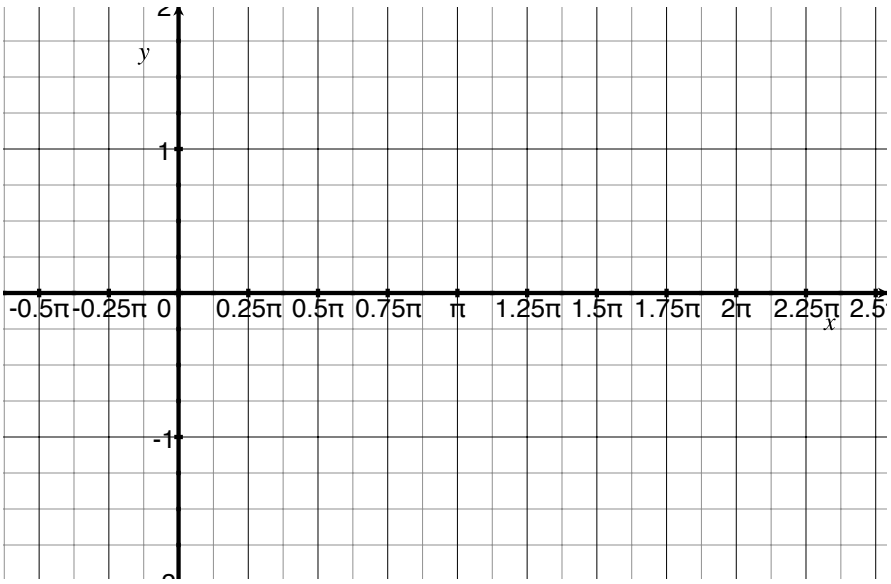
   (a) $f(x) = \cos(x)$

   (b) $g(x) = \dfrac{1}{x}$

   (c) $h(x) = e^x$

   (d) $j(x) = 2^x$

   (e) $k(x) = 12x^2 - 6e^x + 5$



3. Consider $f(x) = \sin(x)$.

   (a) Sketch the area described by $\int_0^{\pi} \sin(x)\,dx$ on the graph above.

   (b) Find the exact area you sketched in part (a).