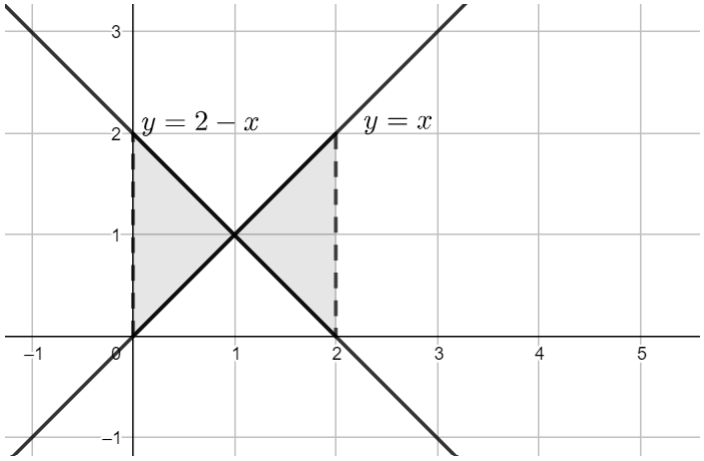
An Intersecting Point

1. Use geometry to compute the area shaded below.



2. Evaluate $\int_0^2 (2 - x) - x \, dx$. Does this match your answer to question 1? Why or why not?

3. Set up and evaluate an integral (or integrals) that gives the shaded area above. What did you have to change about the integral in question 2?

4. Evaluate the area enclosed by $y = \sin(\pi x) + 1$ and $y = x^3 - x + 1$ **using integrals**.