Take-home Quiz 1   **Calc 2**   **Due 1/31/22**

Each question is worth 5 points. Show good justification for full credit. Open book, open notes, feel free to collaborate with anyone, but try to make sure you understand what you turn in well.

1. Show how Line 77 from the table of Integrals in Stewart can be found:

$$\int \sec^n u \, du = \frac{1}{n-1} \tan u \sec^{n-2} u + \frac{n-2}{n-1} \int \sec^{n-2} u \, du$$

2. Show why the area inside the ellipse with equation $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ is πab.

3. Show how Line 43 from the Table of Integrals in Stewart can be found:

$$\int \frac{du}{\sqrt{u^2 - a^2}} = \ln \left| u + \sqrt{u^2 - a^2} \right| + C$$