MAT137

- Problem set 7 is due on February 1.
- Test 3 will take place on February 9, 3 – 5 pm. Please email Alfonso if you have a conflict.
- Before next class, watch videos 9.13 - 9.14.

Area between curves

Find the area (in the first quadrant) contained between the graph of $y = \sin x$ and $y = \frac{3}{5\pi}x$.

First, where do these two graphs intersect?

Next, express the area as an integral.

Products of trigonometric functions

Suppose we want to integrate products of trigonometric functions, such as

$$\int \sin^3 x \cos^8 x \, dx$$

$$\int \sin^5 x \cos^3 x \, dx$$

$$\int \cos^9 x \, dx$$

$$\int \sin^2 x \cos^2 x \, dx$$

Three of these are "easy" and one of them is "hard". Why are three of them easy? What methods can we use for the hard one?

Products of secant and tangent

As mentioned in the video, the method used for product of sin and cos and can also be used for the product of sec and tan. Try the following integral:

$$\int \sec^4 x \tan^7 x \, dx$$