SECTION 3.2: TRIGONOMETRIC INTEGRALS (DAY 1)

1. Trigonometric Integrals evaluated using Calc I Techniques

   (a) $\int \sin^5(x)\cos(x)\,dx$

   (b) $\int \tan^6(x)\sec^2(x)\,dx$

   (c) $\int \tan(x)\sec^5(x)\,dx$

   (d) $\int \tan(x)\,dx$

   (e) $\int \sec(x)\,dx$

2. Review of Pythagorean Trigonometric Identities for sine, cosine, tangent and secant.

3. Below you will see two integrals, one from page 1 and a new one. Explain why the technique you used on page 1 will not work. Use one of the identities above to write the new integral so that it is integrable.

   (a) (page 1:) $\int \sin^5(x)\cos(x)\,dx$, (new:) $\int \sin^5(x)\cos^3(x)\,dx$

   (b) (page 1:) $\int \tan^6(x)\sec^2(x)\,dx$, (new:) $\int \tan^6(x)\sec^6(x)\,dx$

   (c) (page 1:) $\int \tan(x)\sec^5(x)\,dx$, (new:) $\int \tan^3(x)\sec^5(x)\,dx$

   (d) (page 1:) $\int \sec(x)\,dx$, (new:) $\int \sec^3(x)\,dx$ (Use Integration by Parts)