

Fill-in these indefinite integrals you (should) already know:

•  $\int x^n dx =$

•  $\int \sin x dx =$

•  $\int \cos x dx =$

•  $\int \sec^2 x dx =$

•  $\int \sec x \tan x dx =$

•  $\int \csc^2 x dx =$

•  $\int \frac{1}{x} dx =$

•  $\int e^x dx =$

•  $\int a^x dx =$

•  $\int \frac{1}{\sqrt{1-x^2}} dx =$

•  $\int \frac{1}{1+x^2} dx =$

•  $\int \csc x \cot x dx =$

- **Question 1:** How do you check your answers when computing integrals? For example, suppose  $\int f(x) dx = F(x) + C$ . How do you know you are right?

- **Question 2:** For what value of  $n$  does the reverse power rule for the antiderivative of  $x^n$  not apply? What is the antiderivative of  $x^n$  for this value of  $n$ ?

- **Question 3:** What is the  $u$ -substitution to use for the following integral?:

$$\int f(g(x)) g'(x) dx =$$

- **Question 4:** When you check an indefinite integral which you did by substitution, what derivative rule will you always use?