Math 182 Integral and Differentiation Review Version A

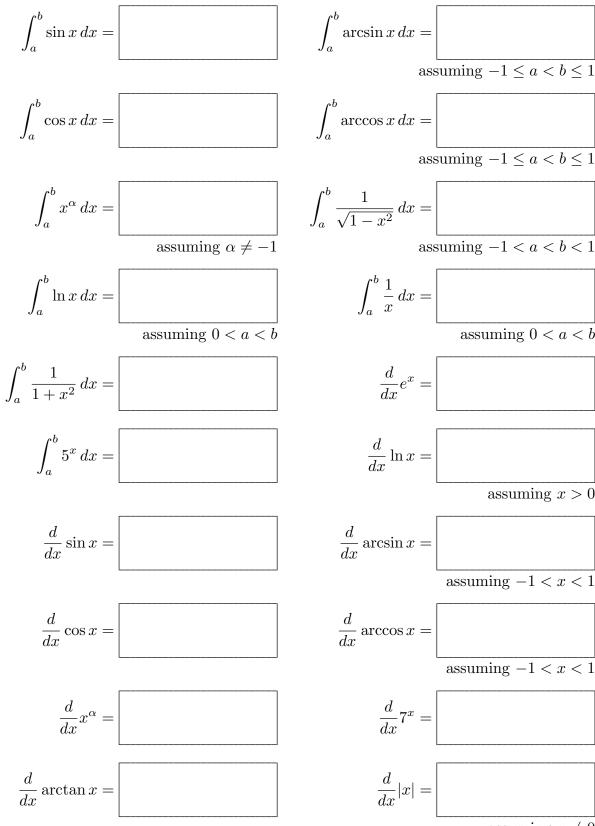**1.** State the following integration and differentiation formula:

$$\int_a^b \sin x \, dx = \boxed{}$$

$$\int_a^b \arcsin x \, dx = \boxed{}$$
assuming $-1 \leq a < b \leq 1$

$$\int_a^b \cos x \, dx = \boxed{}$$

$$\int_a^b \arccos x \, dx = \boxed{}$$
assuming $-1 \leq a < b \leq 1$

$$\int_a^b x^\alpha \, dx = \boxed{}$$
assuming $\alpha \neq -1$

$$\int_a^b \frac{1}{\sqrt{1-x^2}} \, dx = \boxed{}$$
assuming $-1 < a < b < 1$

$$\int_a^b \ln x \, dx = \boxed{}$$
assuming $0 < a < b$

$$\int_a^b \frac{1}{x} \, dx = \boxed{}$$
assuming $0 < a < b$

$$\int_a^b \frac{1}{1+x^2} \, dx = \boxed{}$$

$$\frac{d}{dx} e^x = \boxed{}$$

$$\int_a^b 5^x \, dx = \boxed{}$$

$$\frac{d}{dx} \ln x = \boxed{}$$
assuming $x > 0$

$$\frac{d}{dx} \sin x = \boxed{}$$

$$\frac{d}{dx} \arcsin x = \boxed{}$$
assuming $-1 < x < 1$

$$\frac{d}{dx} \cos x = \boxed{}$$

$$\frac{d}{dx} \arccos x = \boxed{}$$
assuming $-1 < x < 1$

$$\frac{d}{dx} x^\alpha = \boxed{}$$

$$\frac{d}{dx} 7^x = \boxed{}$$

$$\frac{d}{dx} \arctan x = \boxed{}$$

$$\frac{d}{dx} |x| = \boxed{}$$
assuming $x \neq 0$