

# 6.1 Day 1 Answer Key

Kuta Software - Infinite Calculus

Name \_\_\_\_\_

Integration - Logarithmic Rule and Exponentials

Date \_\_\_\_\_ Period \_\_\_\_\_

Evaluate each indefinite integral.

$$1) \int x^{-1} dx$$
$$\ln |x| + C$$

$$2) \int 3x^{-1} dx$$
$$3 \ln |x| + C$$

$$3) \int -\frac{1}{x} dx$$
$$-\ln |x| + C$$

$$4) \int \frac{1}{x} dx$$
$$\ln |x| + C$$

$$5) \int -e^x dx$$
$$-e^x + C$$

$$6) \int e^x dx$$
$$e^x + C$$

$$7) \int 2 \cdot 3^x dx$$
$$\frac{2 \cdot 3^x}{\ln 3} + C$$

$$8) \int 3 \cdot 5^x dx$$
$$\frac{3 \cdot 5^x}{\ln 5} + C$$

## Integration

Evaluate each indefinite integral.

$$1) \int \frac{1}{\sqrt{16-x^2}} dx$$
$$\sin^{-1} \frac{x}{4} + C$$

$$2) \int \frac{1}{4+x^2} dx$$
$$\frac{1}{2} \cdot \tan^{-1} \frac{x}{2} + C$$

$$3) \int \frac{1}{x\sqrt{x^2-1}} dx$$
$$\sec^{-1} |x| + C$$

$$4) \int \frac{1}{16+x^2} dx$$
$$\frac{1}{4} \cdot \tan^{-1} \frac{x}{4} + C$$

$$5) \int \frac{1}{x\sqrt{x^2-4}} dx$$
$$\frac{1}{2} \cdot \sec^{-1} \frac{|x|}{2} + C$$

$$6) \int \frac{1}{\sqrt{25-x^2}} dx$$
$$\sin^{-1} \frac{x}{5} + C$$

$$7) \int \frac{1}{x\sqrt{x^2-81}} dx$$
$$\frac{1}{9} \cdot \sec^{-1} \frac{|x|}{9} + C$$

$$8) \int \frac{1}{4+x^2} dx$$
$$\frac{1}{2} \cdot \tan^{-1} \frac{x}{2} + C$$

## Integration - Trigonometric Functions

Evaluate each indefinite integral.

1)  $\int \cos x \, dx$

$\sin x + C$

2)  $\int -5\sin x \, dx$

$5\cos x + C$

3)  $\int 3 \cdot \sec^2 x \, dx$

$3\tan x + C$

4)  $\int -3\csc x \cdot \cot x \, dx$

$3\csc x + C$

5)  $\int \frac{2}{\sec x} \, dx$

$2\sin x + C$

6)  $\int \frac{5}{\csc x} \, dx$

$-5\cos x + C$

7)  $\int -4\tan x \, dx$

$-4 \ln |\sec x| + C$

8)  $\int -\cot x \, dx$

$-\ln |\sin x| + C$