

Quick Check

Date _____ Period _____

Differentiate each function with respect to x .

1) $y = \cot 2x^5$

2) $y = \csc 4x^3$

3) $y = \tan 2x^4$

4) $y = \ln x^4$

5) $y = e^{3x^4}$

6) $y = e^{-x^3}$

Evaluate each indefinite integral.

7) $\int 2\csc x \cdot \cot x \, dx$

8) $\int \sin x \, dx$

9) $\int \sec x \cdot \tan x \, dx$

Answers to Quick Check (ID: 1)

$$1) \frac{dy}{dx} = -\csc^2 2x^5 \cdot 10x^4 \\ = -10x^4 \cdot \csc^2 2x^5$$

$$2) \frac{dy}{dx} = -\csc 4x^3 \cot 4x^3 \cdot 12x^2 \\ = -12x^2 \csc 4x^3 \cdot \cot 4x^3$$

$$3) \frac{dy}{dx} = \sec^2 2x^4 \cdot 8x^3 \\ = 8x^3 \cdot \sec^2 2x^4$$

$$4) \frac{dy}{dx} = \frac{1}{x^4} \cdot 4x^3 \\ = \frac{4}{x}$$

$$5) \frac{dy}{dx} = e^{3x^4} \cdot 12x^3$$

$$6) \frac{dy}{dx} = e^{x^3} \cdot 3x^2$$

$$7) -2\csc x + C$$

$$8) -\cos x + C$$

$$9) \sec x + C$$