

## Calculus Practice: Techniques for Finding Antiderivatives 5b

Evaluate each indefinite integral. Use the provided substitution.

1)  $\int 30x^2 \cdot 4^{2x^3+1} dx; u = 2x^3 + 1$

2)  $\int 40xe^{4x^2+5} dx; u = 4x^2 + 5$

3)  $\int -4x^4 \cdot 5^{5x^5} dx; u = 5x^5 - 2$

4)  $\int -\frac{40x^3}{2x^4 - 5} dx; u = 2x^4 - 5$

5)  $\int -80x^3 e^{5x^4+3} dx; u = 5x^4 + 3$

6)  $\int 30x^4 e^{2x^5+3} dx; u = 2x^5 + 3$

7)  $\int -\frac{36x^2}{3x^3 + 5} dx; u = 3x^3 + 5$

8)  $\int 30x^2 e^{2x^3+1} dx; u = 2x^3 + 1$

9)  $\int -100x^3 e^{5x^4-3} dx; u = 5x^4 - 3$

10)  $\int -45x^2 \cdot 4^{3x^3+4} dx; u = 3x^3 + 4$

$$11) \int -20x^3 e^{x^4+5} dx; u = x^4 + 5$$

$$12) \int 18x^2 e^{2x^3+3} dx; u = 2x^3 + 3$$

$$13) \int \frac{45x^4}{3x^5+2} dx; u = 3x^5 + 2$$

$$14) \int \frac{4x}{2x^2-1} dx; u = 2x^2 - 1$$

$$15) \int \frac{4x}{2x^2+1} dx; u = 2x^2 + 1$$

$$16) \int -40xe^{5x^2-2} dx; u = 5x^2 - 2$$

$$17) \int -\frac{24x}{3x^2+5} dx; u = 3x^2 + 5$$

$$18) \int -27x^2 e^{3x^3-5} dx; u = 3x^3 - 5$$

$$19) \int -\frac{36x^2}{4x^3+5} dx; u = 4x^3 + 5$$

$$20) \int 5x^4 \cdot 4^{x^5-5} dx; u = x^5 - 5$$

## Calculus Practice: Techniques for Finding Antiderivatives 5b

Evaluate each indefinite integral. Use the provided substitution.

1)  $\int 30x^2 \cdot 4^{2x^3+1} dx; u = 2x^3 + 1$

$$\frac{5 \cdot 4^{2x^3+1}}{\ln 4} + C$$

2)  $\int 40xe^{4x^2+5} dx; u = 4x^2 + 5$

$$5e^{4x^2+5} + C$$

3)  $\int -4x^4 \cdot 5^{5x^5} dx; u = 5x^5 - 2$

$$-\frac{4 \cdot 5^{5x^5-2}}{\ln 5} + C$$

4)  $\int -\frac{40x^3}{2x^4-5} dx; u = 2x^4 - 5$

$$-5 \ln |2x^4 - 5| + C$$

5)  $\int -80x^3 e^{5x^4+3} dx; u = 5x^4 + 3$

$$-4e^{5x^4+3} + C$$

6)  $\int 30x^4 e^{2x^5+3} dx; u = 2x^5 + 3$

$$3e^{2x^5+3} + C$$

7)  $\int -\frac{36x^2}{3x^3+5} dx; u = 3x^3 + 5$

$$-4 \ln |3x^3 + 5| + C$$

8)  $\int 30x^2 e^{2x^3+1} dx; u = 2x^3 + 1$

$$5e^{2x^3+1} + C$$

9)  $\int -100x^3 e^{5x^4-3} dx; u = 5x^4 - 3$

$$-5e^{5x^4-3} + C$$

10)  $\int -45x^2 \cdot 4^{3x^3+4} dx; u = 3x^3 + 4$

$$-\frac{5 \cdot 4^{3x^3+4}}{\ln 4} + C$$

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$$3e^{2x^3+3} + C$$

$$13) \int \frac{45x^4}{3x^5+2} dx; u = 3x^5 + 2$$
$$3 \ln |3x^5 + 2| + C$$

$$14) \int \frac{4x}{2x^2-1} dx; u = 2x^2 - 1$$
$$\ln |2x^2 - 1| + C$$

$$15) \int \frac{4x}{2x^2+1} dx; u = 2x^2 + 1$$
$$\ln (2x^2 + 1) + C$$

$$16) \int -40xe^{5x^2-2} dx; u = 5x^2 - 2$$
$$-4e^{5x^2-2} + C$$

$$17) \int -\frac{24x}{3x^2+5} dx; u = 3x^2 + 5$$
$$-4 \ln (3x^2 + 5) + C$$

$$18) \int -27x^2 e^{3x^3-5} dx; u = 3x^3 - 5$$
$$-3e^{3x^3-5} + C$$

$$19) \int -\frac{36x^2}{4x^3+5} dx; u = 4x^3 + 5$$
$$-3 \ln |4x^3 + 5| + C$$

$$20) \int 5x^4 \cdot 4^{x^5-5} dx; u = x^5 - 5$$
$$\frac{4^{x^5-5}}{\ln 4} + C$$