

U SUB PRACTICE (Criteria of Success: 8)

Date _____ Period _____

(LVL1) Evaluate each indefinite integral. Use the provided substitution.

1) $\int (4x^5 - 1)^4 \cdot 20x^4 dx; u = 4x^5 - 1$

2) $\int 10x(5x^2 + 2)^4 dx; u = 5x^2 + 2$

3) $\int (5x^5 - 2)^3 \cdot 25x^4 dx; u = 5x^5 - 2$

4) $\int (3x^3 + 2)^5 \cdot 9x^2 dx; u = 3x^3 + 2$

(LVL 2) Express each definite integral in terms of u , but do not evaluate.

$$5) \int_{-1}^0 9x^2(3x^3 - 2)^2 dx; u = 3x^3 - 2$$

$$6) \int_0^2 -\frac{12x}{(2x^2 + 1)^2} dx; u = 2x^2 + 1$$

$$7) \int_{-1}^0 -\frac{12x}{(3x^2 + 2)^2} dx; u = 3x^2 + 2$$

$$8) \int_{-1}^2 -2x(x^2 - 1)^2 dx; u = x^2 - 1$$

Evaluate each indefinite integral.

9) $\int 35x^4(7x^5 - 4)^9 dx$

10) $\int (4x^4 - 5)^6 \cdot 16x^3 dx$

11) $\int (9x^7 + 4)^9 \cdot 63x^6 dx$

12) $\int (x^7 - 7)^9 \cdot 7x^6 dx$

(LVL 3) Evaluate each indefinite integral.

$$13) \int 45x^2 \cdot \csc^2(5x^3 - 2) dx$$

$$14) \int -3x^2 \cos(x^3 + 4) dx$$

$$15) \int -10x \csc(x^2 - 3) \cdot \cot(x^2 - 3) dx$$

$$16) \int -15x^2 \cos(x^3 - 2) dx$$

(LVL3) Evaluate each indefinite integral.

$$17) \int -\frac{60x^3}{3x^4 - 1} dx$$

$$18) \int 30x^4 e^{3x^5 - 1} dx$$

$$19) \int -16xe^{2x^2 + 3} dx$$

$$20) \int -6x^2 e^{x^3 + 3} dx$$

Answers to U SUB PRACTICE (Criteria of Success: 8) (ID: 1)

1) $\frac{1}{5}(4x^5 - 1)^5 + C$

2) $\frac{1}{5}(5x^2 + 2)^5 + C$

3) $\frac{1}{4}(5x^5 - 2)^4 + C$

4) $\frac{1}{6}(3x^3 + 2)^6 + C$

5) $\int_{-5}^{-2} u^2 du$

6) $\int_1^9 -\frac{3}{u^2} du$

7) $\int_5^2 -\frac{2}{u^2} du$

8) $\int_0^3 -u^2 du$

9) $\frac{1}{10}(7x^5 - 4)^{10} + C$

10) $\frac{1}{7}(4x^4 - 5)^7 + C$

11) $\frac{1}{10}(9x^7 + 4)^{10} + C$

12) $\frac{1}{10}(x^7 - 7)^{10} + C$

13) $-3\cot(5x^3 - 2) + C$

14) $-\sin(x^3 + 4) + C$

15) $5\csc(x^2 - 3) + C$

16) $-5\sin(x^3 - 2) + C$

17) $-5\ln|3x^4 - 1| + C$

18) $2e^{3x^5 - 1} + C$

19) $-4e^{2x^2 + 3} + C$

20) $-2e^{x^3 + 3} + C$