

Name : _____

Score : _____

Teacher : _____

Date : _____

Integration by Substitution

Find each indefinite integral using the substitution provided.

1) $\int ((280x^4 + 64x^3)e^{7x^5 + 2x^4})dx$

$$u = 7x^5 + 2x^4$$

2) $\int ((20x^3 + 25)e^{x^4 + 5x})dx$

$$u = x^4 + 5x$$

3) $\int ((9 + 36x^2)e^{3x + 4x^3})dx$

$$u = 3x + 4x^3$$

4) $\int ((-10x - 6x^2)e^{5x^2 + 2x^3})dx$

$$u = 5x^2 + 2x^3$$

5) $\int ((30x^2 + 20x^4)e^{5x^3 + 2x^5})dx$

$$u = 5x^3 + 2x^5$$

6) $\int ((144x + 72x^2)e^{9x^2 + 3x^3})dx$

$$u = 9x^2 + 3x^3$$

7) $\int ((16x^3 + 12x)e^{2x^4 + 3x^2})dx$

$$u = 2x^4 + 3x^2$$

8) $\int ((280x^4 + 42)e^{8x^5 + 6x})dx$

$$u = 8x^5 + 6x$$



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Integration by Substitution

Find each indefinite integral using the substitution provided.

9) $\int ((15x^2 + 28x^3)e^{5x^3 + 7x^4})dx$

$$u = 5x^3 + 7x^4$$

10) $\int ((280x^3 + 84x)e^{10x^4 + 6x^2})dx$

$$u = 10x^4 + 6x^2$$

11) $\int ((-72x - 200x^4)e^{9x^2 + 10x^5})dx$

$$u = 9x^2 + 10x^5$$

12) $\int ((-4x - 100x^4)e^{x^2 + 10x^5})dx$

$$u = x^2 + 10x^5$$

13) $\int ((28 + 48x)e^{7x + 6x^2})dx$

$$u = 7x + 6x^2$$

14) $\int ((-90x^2 - 135x^4)e^{10x^3 + 9x^5})dx$

$$u = 10x^3 + 9x^5$$

15) $\int ((-36x^2 - 72x^3)e^{4x^3 + 6x^4})dx$

$$u = 4x^3 + 6x^4$$

16) $\int ((100x^3 + 15)e^{5x^4 + 3x})dx$

$$u = 5x^4 + 3x$$



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$$u = 7x^5 + 2x^4$$

$$8e^{7x^5 + 2x^4} + C$$

2) $\int ((20x^3 + 25)e^{x^4 + 5x})dx$

$$u = x^4 + 5x$$

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

3) $\int ((9 + 36x^2)e^{3x + 4x^3})dx$

$$u = 3x + 4x^3$$

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

4) $\int ((-10x - 6x^2)e^{5x^2 + 2x^3})dx$

$$u = 5x^2 + 2x^3$$

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

5) $\int ((30x^2 + 20x^4)e^{5x^3 + 2x^5})dx$

$$u = 5x^3 + 2x^5$$

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

6) $\int ((144x + 72x^2)e^{9x^2 + 3x^3})dx$

$$u = 9x^2 + 3x^3$$

$$8e^{9x^2 + 3x^3} + C$$

7) $\int ((16x^3 + 12x)e^{2x^4 + 3x^2})dx$

$$u = 2x^4 + 3x^2$$

$$2e^{2x^4 + 3x^2} + C$$

8) $\int ((280x^4 + 42)e^{8x^5 + 6x})dx$

$$u = 8x^5 + 6x$$

$$7e^{8x^5 + 6x} + C$$



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15) $\int ((-36x^2 - 72x^3)e^{4x^3 + 6x^4})dx$

$$u = 4x^3 + 6x^4$$

$$-3e^{4x^3 + 6x^4} + C$$

16) $\int ((100x^3 + 15)e^{5x^4 + 3x})dx$

$$u = 5x^4 + 3x$$

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

