

$$7) \int -25x^4 \sec^2(5x^5+4) dx$$

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

$$-du = 25x^4 dx$$

$$-\int \sec^2(u) du$$

$$-\tan(5x^5+4) + C$$

$$1) \int 5 \cdot \sec^2 5x \cdot \tan^5 5x dx$$

$$u = \tan(5x)$$

$$du = 5 \sec^2(5x) dx$$

$$\int u^5 du$$

$$\frac{\tan^6(5x)}{6} + C$$

$$3) \int (5x^4 - 2)^3 \cdot 20x^3 dx$$

$$u = 5x^4 - 2$$

$$du = 20x^3 dx$$

$$\int (u)^3 du = \frac{(5x^4 - 2)^4}{4} + C$$

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$$4) \int -5 \cdot \csc^2 5x \cdot \cot^4 5x dx$$

$$u = \cot 5x$$

$$du = -5 \csc^2 5x dx$$

$$\int u^4 du = \frac{u^5}{5} = \frac{(\cot 5x)^5}{5} + C$$

$$11) \int_0^2 \frac{8x}{(4x^2+2)^2} dx; u = 4x^2+2$$

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

$$du = 8x dx$$

$$\int \frac{du}{u^2} = \frac{-1}{u} = \frac{-1}{4x^2+2}$$

$$\frac{-1}{4} = \frac{-1}{4}$$

$$13) \int_0^1 6x^2(x^2+1)^3 dx; u = x^2+1$$

$$u = x^2+1$$

$$2du = 2x^2(2) = 4x^2$$

$$\int_0^1 2(u)^3 \cdot \frac{1}{2} du = \frac{2}{4} \cdot \frac{u^4}{4} = \frac{2(1+1)^4}{4} = \frac{32}{4} = 8$$

$$8 - 0 = 8$$

$$18) \int_0^1 \frac{24x}{(4x^2+3)^2} dx$$

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

$$du = 8x$$

$$3du = 24x$$

$$3 \int \frac{du}{u^2} = \frac{-3}{u} = \frac{-3}{4x^2+3}$$

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$$16) \int_{-2}^1 \frac{18x}{(3x^2+3)^2} dx$$

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

$$3du = 18x$$

$$du = 6x$$

$$3 \int \frac{du}{u^2} = \frac{-3}{u} = \frac{-3}{3x^2+3}$$

$$\frac{-3}{3x^2+3} = \frac{-1}{x^2+1} = \frac{-1}{2} + \frac{1}{5}$$

$$\frac{-1}{2} + \frac{1}{5} = \frac{-5}{10} + \frac{2}{10} = \frac{-3}{10}$$

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