Knowledge Bank

You can use these "pieces" to evaluate other problems in the worksheet. If you get stuck, come back here!

$$\frac{d}{dx}\sqrt{x+1} =$$
$$\int_1^0 x^2 dx =$$
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Practice

Evaluating Definite Integrals – Evaluate the following definite integrals using the Fundamental Theorem of Calculus, Part 2

$$\int_0^{10} (60x - 6x^2)dx =$$

$$\int_0^{2\pi} 3\sin x \, dx =$$

$$\int_{\frac{1}{16}}^{\frac{1}{4}} \frac{\sqrt{t}-1}{t} dt =$$

Derivatives of Integrals – Use Part 1 of the Fundamental Theorem to simplify the following expressions

$$\frac{d}{dx}\int_1^x \sin^2 t \, dt =$$

$$\frac{d}{dx}\int_x^5 \sqrt{t^2+1}\, dt =$$

$$\frac{d}{dx}\int_0^{x^2} \cos t^2 \, dt =$$

Average Value Equals Function Value – Find the point(s) on the interval $(0,1)$ at which $f(x) = 2x(1 - x)$ equals its average value on $[0,1]$

The Substitution Method – Find the following indefinite integrals

$$\int x^4(x^5 + 6)^9 dx =$$

$$\int \cos^3 x \sin x \ dx =$$

$$\int \frac{x}{\sqrt{x + 1}} dx =$$