

Homework

In the following problems use the calc tutor to help find the integrals. You can use the cheat sheets for the trigonometric integrals.

$$\int \frac{x}{x^2 + 1} dx;$$

$$> \int \frac{1}{x \cdot \ln(x^3)} dx;$$

$$> \int \frac{2 \cdot x}{(x - 1)^2} dx;$$

$$> \int \frac{\cos(x)}{1 + \sin(x)} dx$$

$$> \int \frac{\sec(x) \cdot \tan(x)}{\sec(x) - 1} dx$$

$$> \int \sec\left(\frac{x}{2}\right) dx$$

$$> \int \frac{e^{\frac{3}{x}}}{x^2} dx;$$

> # In the following use the solve command to show that the functions are inverses of one another. Use a plot to see they are inverses.

$$> f(x) = x^2 + 4; g(x) = \text{sqrt}(x - 4);$$

$$> f(x) = \frac{1}{1 + x}; g(x) = \frac{(1 - x)}{x};$$

> # In the following use the solve to find the inverse. Plot both functions

$$> f(x) = x^{\frac{2}{3}};$$

$$> f(x) = \cot(x);$$

on interval $(0, \text{Pi})$.. what is the domain of the inverse. How does this relate to graph of $\cot(x)$; can you plot $\cot(x)$;

> # simplify $\sin(\arctan(2x))$; Use Maple to see what answer should be

$$> \int \frac{7}{16 + x^2} dx;$$

look at substitutions and formulas for derivatives and trig identities on cheat sheets

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