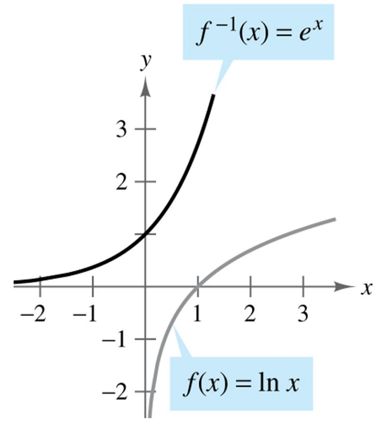
Section 5.4: Exponential Functions



The inverse function of ln *x* is the *natural exponential function*

f(*x*) has the unique property that it is *equal to its own derivativ* ng
$\ln e^x = x$ and differentiating both sides.

$$\ln e^x = x$$
$$\frac{1}{e^x}\frac{d}{dx}e^x = 1$$
$$\frac{d}{dx}e^x = e^x$$

Section 5.5: Bases Other than *e* and Applications

Our textbook "defines" the *general exponential function* as

$$a^x = e^{(\ln a)x}$$

We can find the

Section 5.6: Inverse Trigonometric Functions: Differentiation

Section 5.7: Inverse Trigonometric Functions: Integration

Section 5.8: Hyperbolic functions

You can interpret the argument of sinh or cosh as not as an angle, but the area between a ray at that angle and the graph of the hyperbola.

The derivatives are analogous with the derivatives of the trig functions except that the reciprocal functions and not the cofunctions are negative.