

Problem Definition

Problem 63. Determine whether or not the following equation is true or false.

$$\ln(x)^{1/2} = \frac{1}{2}(\ln(x))$$

Solution Step 1:

This statement is not true. To disprove a statement we only need one example where the statement is false. If we check the point $x = e^2$, we find the following.

$$\frac{1}{2}\ln(e^2) = \frac{1}{2}(2)\ln(e) = \ln(e) = 1$$

and

$$\ln(e^2)^{1/2} = (2)^{1/2} \approx 1.414$$

Since the two values are not equal the expression cannot be true in general.