Taking the derivative of a function

Let $f(x) = \exp(1 + 1/x^2) + x * \ln(x)$

Next, we will take the derivative $f_x^{'}(x)$:

Step-by-step solution:
$(\exp(1 + 1/x^2) + x * \ln(x))^{'} = (x * \ln(x))^{'} + (\exp(1 + 1/x^2))^{'}$
$(x * (\ln(x)))^{'} = x^{'} * (\ln(x)) + x * (\ln(x))^{'}$
$\ln^{'} x = 1/x * x^{'}$
$\exp^{'}(1 + 1/x^2) = \exp(1 + 1/x^2) * (1 + 1/x^2)^{'}$
$(1 + 1/x^2)^{'} = (1/x^2)^{'} + 1^{'}$
$(1/(x^2))^{'} = (1^{'} * (x^2) - 1 * (x^2)^{'})/(x^2)^2$
$(x^2)^{'} = x^{2-1} * (2 * x^{'} + x * \ln x * 2^{'})$

The derivative is:
$\exp(1 + 1/x^2) * (0 + ((0 * x^2) - (x^{2-1} * (1 * 2 + x * 0 * \ln(x)) * 1))/(x^2)^2) + 1 * \ln(x) + 1/x * 1 * x$

But you can see many unnecessary actions.
Let us make some simplifications:
$\exp(1 + 1/x^2)*((0*x^2)-(x^1*(1*2+x*0*\ln(x))*1))/(x^2)^2+1*\ln(x)+1/x*1*x$
$\exp(1 + 1/x^2) * (0 - (x^1 * (2 + x * 0 * \ln(x)) * 1))/(x^2)^2 + 1 * \ln(x) + 1/x * 1 * x$
$\exp(1 + 1/x^2) * -1 * x^1 * (2 + x * 0 * \ln(x)) * 1/(x^2)^2 + 1 * \ln(x) + 1/x * 1 * x$
$\exp(1 + 1/x^2) * -1 * x^1 * (2 + x * 0 * \ln(x))/(x^2)^2 + 1 * \ln(x) + 1/x * 1 * x$
$\exp(1 + 1/x^2) * -1 * x * (2 + x * 0 * \ln(x))/(x^2)^2 + 1 * \ln(x) + 1/x * 1 * x$
$\exp(1 + 1/x^2) * -1 * x * (2 + x * 0)/(x^2)^2 + 1 * \ln(x) + 1/x * 1 * x$
$\exp(1 + 1/x^2) * -1 * x * (2 + 0)/(x^2)^2 + 1 * \ln(x) + 1/x * 1 * x$
$\exp(1 + 1/x^2) * -1 * x * 2/(x^2)^2 + \ln(x) + 1/x * 1 * x$
$\exp(1 + 1/x^2) * -1 * x * 2/(x^2)^2 + \ln(x) + 1/x * x$
$\exp(1 + 1/x^2) * -1 * x * 2/(x^2)^2 + \ln(x) + x/x$
$\exp(1 + 1/x^2) * -1 * x * 2/(x^2)^2 + \ln(x) + 1$
$\exp(1 + 1/x^2) * -1 * x * 2/(x^2)^2 + \ln(x) + 1$

In this way:
$\boxed{f_x^{'}(x) = \exp(1 + 1/x^2) * -1 * x * 2/(x^2)^2 + \ln(x) + 1}$

Further simplifications reader can hold their own.