

$(7^{17x+12\ln x})'$ We have derivative of seven to power of seventeen x plus twelve natural logarithms of x

To solve these we must remember that derivative from $(a^x)'$ is $a^x \ln a$

So it would be:

$$7^{17x+12\ln x} \cdot \ln 7 \cdot (17x+12\ln x)' =$$

seven to the power of seventeen x plus twelve natural logarithms of x

natural logarithm of seven

derivative from the inner function is sum, so we could write these as sum of derivatives

$$= 7^{17x+12\ln x} \cdot \ln 7 \cdot [(17x)' + (12\ln x)']$$

We must remember that the constant we can get out in front of the derivative, so it would be:

$$17(x)' + 12(\ln x)'$$

seventeen derivatives of x plus twelve derivatives of natural logarithm of x

$$= 7^{17x+12\ln x} \cdot \ln 7 \cdot (17 + 12 \cdot \frac{1}{x})$$

seven to the power of seventeen x plus twelve natural logarithms of x

natural logarithm of seven

In the bracket:

seventeen (as result of product from seventeen and one (as derivative from x)) plus twelve by x (as a result from product twelve and derivative of natural logarithm of x, which is one by x)