The original expression

$$x + 2 \cdot x^x + \frac{\sin(x)}{x} + x^x$$

After mental calculation:

$$(x^x)' = \log(x) \cdot 1 \cdot x^x + x \cdot 1 \cdot x^{x-1}$$

It is well known that:

$$(2 \cdot x^x)' = x^x \cdot 0 + 2 \cdot (\log(x) \cdot 1 \cdot x^x + x \cdot 1 \cdot x^{x-1})$$

Using WolframAlpha we have:

$$(x + 2 \cdot x^x)' = 1 + x^x \cdot 0 + 2 \cdot (\log(x) \cdot 1 \cdot x^x + x \cdot 1 \cdot x^{x-1})$$

Every child knows that:

$$(\sin(x))' = 1 \cdot \cos(x)$$

For a detailed explanation you should purchase the paid version:

$$(\frac{\sin(x)}{x})' = \frac{x \cdot 1 \cdot \cos(x) - \sin(x) \cdot 1}{x \cdot x}$$

If you are familiar with calculus:

$$(x+2\cdot x^x+\frac{\sin(x)}{x})' = 1+x^x\cdot 0+2\cdot(\log(x)\cdot 1\cdot x^x+x\cdot 1\cdot x^{x-1})+\frac{x \cdot 1 \cdot \cos(x) - \sin(x) \cdot 1}{x \cdot x}$$

It's not a secret that:

$$(x^x)' = \log(x) \cdot 1 \cdot x^x + x \cdot 1 \cdot x^{x-1}$$

After mental calculation:

$$(x+2\cdot x^x+\frac{\sin(x)}{x}+x^x)' = 1+x^x\cdot 0+2\cdot(\log(x)\cdot 1\cdot x^x+x\cdot 1\cdot x^{x-1})+\frac{x \cdot 1 \cdot \cos(x) - \sin(x) \cdot 1}{x \cdot x}+\log(x)\cdot 1\cdot x^x+x\cdot 1\cdot x^{x-1}$$

The final expression

$$3 \cdot \log(x) \cdot x^x + 3 \cdot x \cdot x^{x-1} + \frac{x \cdot \cos(x) - \sin(x)}{x^2} + 1$$