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DIFFERENTIATION

Patent pending

1 Abstract

So, scientific works get paid for, right? I've got a master plan... And in case the price is proportional to the word count, here's a little something for you:

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The obvious only consequence of the abovestated is that we need to differentiate the so-called *formula ultima* (by x):

$$\frac{1}{2} \cdot (\cos(x+y) - \cos(x-y) + 650) \div (2^{365 \cdot \ln(\frac{12 \cdot x}{7} + y)})$$

2 The actual work

Let us then begin the differentiation. We shall use the well-known Belyaev's algorithm. Division is troubling, but I guess we have no choice...

$\frac{d}{dx}\frac{f}{g} = \frac{f'\cdot g - f\cdot g'}{g^2}$

$f(x) = \frac{1}{2} \cdot (\cos(x+y) - \cos(x-y) + 650)$

$g(x) = 2^{365\cdot \ln(\frac{12\cdot x}{7}+y)}$

Exponential differentiation is not as scary as it looks.

$\frac{d}{dx}a^f = \ln a \cdot a^f \cdot f'$

$f(x) = 2$

$a = 365 \cdot \ln(\frac{12\cdot x}{7} + y)$

Multiplication is a bit difficult, but we can still manage it.

$\frac{d(f\cdot g)}{dx} = f' \cdot g + f \cdot g'$

$f(x) = 365$

$g(x) = \ln(\frac{12\cdot x}{7} + y)$

Natural logarithm is a beautiful function.

$\frac{d}{dx}\ln(\frac{12\cdot x}{7} + y) = \frac{(\frac{12\cdot x}{7}+y)'}{\frac{12\cdot x}{7}+y}$

Thankfully, the derivative is additive.

$\frac{d}{dx}(\frac{12\cdot x}{7} + y) = (\frac{12\cdot x}{7})' + (y)'$

Any variable other than x may be treated as constant.

$\frac{d}{dx}y = 0$

Division is troubling, but I guess we have no choice...

$\frac{d}{dx}\frac{f}{g} = \frac{f' \cdot g - f \cdot g'}{g^2}$

$f(x) = 12 \cdot x$

$g(x) = 7$

Differentiation of a constant is trivial.

$\frac{d}{dx}7 = 0$

Multiplication is a bit difficult, but we can still manage it.

$\frac{d(f \cdot g)}{dx} = f' \cdot g + f \cdot g'$

$f(x) = 12$

$g(x) = x$

The derivative of the target variable is obvious.

$\frac{dx}{dx} = 1$

Differentiation of a constant is trivial.

$\frac{d}{dx}12 = 0$

So, this subexpression results in:

$0 \cdot x + 12 \cdot 1$

If we simplify it, we get:

12

So, this subexpression results in:

$\frac{12 \cdot 7 - 12 \cdot x \cdot 0}{7^2}$

If we simplify it, we get:

$\frac{84}{49}$

So, this subexpression results in:

$\frac{84}{49} + 0$

If we simplify it, we get:

$\frac{84}{49}$

So, this subexpression results in:

$\frac{\frac{84}{49}}{\frac{12 \cdot x}{7} + y}$

Differentiation of a constant is trivial.

$\frac{d}{dx} 365 = 0$

So, this subexpression results in:

$0 \cdot \ln(\frac{12 \cdot x}{7} + y) + 365 \cdot \frac{\frac{84}{49}}{\frac{12 \cdot x}{7} + y}$

If we simplify it, we get:

$365 \cdot \frac{\frac{84}{49}}{\frac{12 \cdot x}{7} + y}$

So, this subexpression results in:

$\ln 2 \cdot 2^{365 \cdot \ln(\frac{12 \cdot x}{7} + y)} \cdot 365 \cdot \frac{\frac{84}{49}}{\frac{12 \cdot x}{7} + y}$

Multiplication is a bit difficult, but we can still manage it.

$\frac{d(f \cdot g)}{dx} = f' \cdot g + f \cdot g'$

$f(x) = \frac{1}{2}$

$g(x) = \cos(x + y) - \cos(x - y) + 650$

Thankfully, the derivative is additive.

$\frac{d}{dx}(\cos(x + y) - \cos(x - y) + 650) = (\cos(x + y) - \cos(x - y))' + (650)'$

Differentiation of a constant is trivial.

$\frac{d}{dx}650 = 0$

Thankfully, the derivative is additive (even in subtraction).

$\frac{d}{dx}(\cos(x+y) - \cos(x-y)) = (\cos(x+y))' - (\cos(x-y))'$

Cosine turns into negative sine.

$\frac{d}{dx}\cos(x-y) = -\sin(x-y) \cdot (x-y)'$

Thankfully, the derivative is additive (even in subtraction).

$\frac{d}{dx}(x-y) = (x)' - (y)'$

Any variable other than x may be treated as constant.

$\frac{d}{dx}y = 0$

The derivative of the target variable is obvious.

$\frac{dx}{dx} = 1$

So, this subexpression results in:

$1 - 0$

If we simplify it, we get:

1

So, this subexpression results in:

$-\sin(x-y) \cdot 1$

If we simplify it, we get:

$-\sin(x-y)$

Cosine turns into negative sine.

$\frac{d}{dx}\cos(x+y) = -\sin(x+y) \cdot (x+y)'$

Thankfully, the derivative is additive.

$\frac{d}{dx}(x+y) = (x)' + (y)'$

Any variable other than x may be treated as constant.

$\frac{d}{dx}y = 0$

The derivative of the target variable is obvious.

$\frac{dx}{dx} = 1$

So, this subexpression results in:

$1 + 0$

If we simplify it, we get:

1

So, this subexpression results in:

$-\sin(x+y) \cdot 1$

If we simplify it, we get:

$-\sin(x+y)$

So, this subexpression results in:

$-\sin(x+y) - -\sin(x-y)$

So, this subexpression results in:

$-\sin(x+y) - -\sin(x-y) + 0$

If we simplify it, we get:

$-\sin(x+y) - -\sin(x-y)$

Division is troubling, but I guess we have no choice...

$\frac{d}{dx}\frac{f}{g} = \frac{f' \cdot g - f \cdot g'}{g^2}$

$f(x) = 1$

$g(x) = 2$

Differentiation of a constant is trivial.

$\frac{d}{dx}2 = 0$

Differentiation of a constant is trivial.

$\frac{d}{dx}1 = 0$

So, this subexpression results in:

$\frac{0 \cdot 2 - 1 \cdot 0}{2^2}$

If we simplify it, we get:

0

So, this subexpression results in:

$0 \cdot (\cos(x+y) - \cos(x-y) + 650) + \frac{1}{2} \cdot (-\sin(x+y) - -\sin(x-y))$

If we simplify it, we get:

$\frac{1}{2} \cdot (-\sin(x+y) - -\sin(x-y))$

So, this subexpression results in:

$(\frac{1}{2} \cdot (-\sin(x+y) - -\sin(x-y)) \cdot 2^{365 \cdot \ln(\frac{12 \cdot x}{7} + y)} - \frac{1}{2} \cdot (\cos(x+y) - \cos(x - y) + 650) \cdot \ln 2 \cdot 2^{365 \cdot \ln(\frac{12 \cdot x}{7} + y)} \cdot 365 \cdot \frac{\frac{84}{49}}{\frac{12 \cdot x}{7} + y}) \div ((2^{365 \cdot \ln(\frac{12 \cdot x}{7} + y)})^2)$

3 Conclusion

So yeah, we got the derivative: $\left(\frac{1}{2} \cdot (\cos(x+y) - \cos(x-y) + 650) \div (2^{365 \cdot \ln(\frac{12 \cdot x}{7} + y)})\right)'(x) = (\frac{1}{2} \cdot (-\sin(x+y) - -\sin(x-y)) \cdot 2^{365 \cdot \ln(\frac{12 \cdot x}{7} + y)} - \frac{1}{2} \cdot (\cos(x+y) - \cos(x-y) + 650) \cdot \ln 2 \cdot 2^{365 \cdot \ln(\frac{12 \cdot x}{7} + y)} \cdot 365 \cdot \frac{\frac{84}{49}}{\frac{12 \cdot x}{7} + y}) \div ((2^{365 \cdot \ln(\frac{12 \cdot x}{7} + y)})^2)$. The further simplification of the result, if at all possible, is left as an exercise to the reader. Now onto the real business: my payment. **You owe me.** As a wise man once said, ” ♂️ *Differentiation is three hundred bucks* ♂️ ” ...

4 References

1. Wikipedia. Lots of it. Approx. 40000 BC-2020 AD, I guess...

2. My glorious mind. Pages 371-378. 2002

3. A conspect book of Ilya Dedinsky’s seminars, Andrew Belyaev, 2020

4. Jojo references, Dio Brando & many others, 1880-2000 + a couple of universe lifespan cycles

5. Linked list’s cross-references (as a source of inspiration), God Almighty himself, exist in a separate concept space outside of the temporal continuum

6. Gachimuchi (in the conclusion), but I was serious: pay me!!!