

Example presentation

Addressing multiple topics

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Some day in 2015

Outline of this talk

About e

About functions

About the World Wide Web

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The constant e I

Definition:

$$e = \lim_{n \rightarrow \infty} \left(1 + \frac{1}{n}\right)^n$$

Proof:

1. \ln in both sides.

$$1 = \ln \left[\lim_{n \rightarrow \infty} \left(1 + \frac{1}{n}\right)^n \right]$$

2. \lim out of \ln (due to continuity).

$$1 = \lim_{n \rightarrow \infty} \ln \left[\left(1 + \frac{1}{n}\right)^n \right]$$

3. n out of \ln .

$$1 = \lim_{n \rightarrow \infty} n \ln \left(1 + \frac{1}{n}\right)$$

The constant e II

4. $n = \frac{1}{r}$.

$$1 = \lim_{r \rightarrow 0} \frac{1}{r} \ln(1 + r)$$

5. $\sum 0 = \ln(1)$.

$$1 = \lim_{r \rightarrow 0} \frac{\ln(1 + r) + \ln(1)}{r}$$

6. definition of derivative of \ln calculated at 1.

$$1 = \ln'(x) \Big|_{x=1}$$

$$1 = \frac{1}{x} \Big|_{x=1}$$

$$1 = 1$$



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Taylor expansion

also known as polynomial expansion

Definition:

$$f(x) = \sum_{n=0}^{\infty} \frac{f^{(n)}(0)x^n}{n!}$$

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Expanding...

$$f(x) =$$

Taylor expansion

also known as polynomial expansion

Definition:

$$f(x) = \sum_{n=0}^{\infty} \frac{f^{(n)}(0)x^n}{n!}$$

Expanding...

$$f(x) = f(0) +$$

Taylor expansion

also known as polynomial expansion

Definition:

$$f(x) = \sum_{n=0}^{\infty} \frac{f^{(n)}(0)x^n}{n!}$$

Expanding...

$$f(x) = f(0) + f'(0)x +$$

Taylor expansion

also known as polynomial expansion

Definition:

$$f(x) = \sum_{n=0}^{\infty} \frac{f^{(n)}(0)x^n}{n!}$$

Expanding...

$$f(x) = f(0) + f'(0)x + \frac{f''(0)x^2}{2!} +$$

Taylor expansion

also known as polynomial expansion

Definition:

$$f(x) = \sum_{n=0}^{\infty} \frac{f^{(n)}(0)x^n}{n!}$$

Expanding...

$$f(x) = f(0) + f'(0)x + \frac{f''(0)x^2}{2!} + \frac{f'''(0)x^3}{3!} + \dots$$

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Some important websites

There are very interesting places on the web

- ▶ the 1st one is the most famous search engine [[Google](#)].
- ▶ the 2nd one is a remarkable online encyclopedia [[Wikipedia](#)].

Some Java code

```
public class MainClass {  
    public static void main(String[] args) {  
        int limit = 20;  
        int sum = 0;  
        int i = 1;  
  
        while (i <= limit) {  
            sum += i++;  
        }  
        System.out.println("sum_=_ " + sum);  
    }  
}
```

References



Google: <http://www.google.com>



Wikipedia: <http://www.wikipedia.com>

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