

Limits from other subjects

October 30, 2019

1 Limit of a function from Math:

This one is considerably short, and it's clear and concise unlike the other ones .

Either way, I'll explain what I've done like every time.

Basically, I'm going to take a multivariable limit using SageMath, so I need to use two variables:
 x, y

```
[1]: var('x,y')
```

```
[1]: (x, y)
```

Now, we shall input a function: $f(x, y) = \frac{e^y \sin(x)}{x} \dots$

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[2]: f(x,y) = e^y*sin(x)/x
```

...which SageMath will happily render in LATEX for us

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[3]: f.show()
```

```
(x, y) |--> e^y*sin(x)/x
```

Now, we evaluate the limit as $(x, y) \rightarrow (0, 0)$

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[4]: f.limit(y=0).limit(x=0).show()
```

```
(x, y) |--> 1
```

Thus, the limit of $f(x, y)$ is 1.

Yay! Now we can practice math without needing any answer keys to validate our answers!

This question was taken from the Exercise Set 1 of the course MA1101, offered in Jul-Nov 2019, at IITM.