

PRACTICAL 1

Compute the following:

1. $(123 - 45) / 4 + 4 * (72 / 2.34 - 3)$

Solution:

```
itmbu-20@itmbu20-V30a-24IIL: ~  
itmbu-20@itmbu20-V30a-24IIL:~$ R  
  
R version 3.6.3 (2020-02-29) -- "Holding the Windsock"  
Copyright (C) 2020 The R Foundation for Statistical Computing  
Platform: x86_64-pc-linux-gnu (64-bit)  
  
R is free software and comes with ABSOLUTELY NO WARRANTY.  
You are welcome to redistribute it under certain conditions.  
Type 'license()' or 'licence()' for distribution details.  
  
Natural language support but running in an English locale  
  
R is a collaborative project with many contributors.  
Type 'contributors()' for more information and  
'citation()' on how to cite R or R packages in publications.  
  
Type 'demo()' for some demos, 'help()' for on-line help, or  
'help.start()' for an HTML browser interface to help.  
Type 'q()' to quit R.  
  
> (123-45)/4+4*(72/2.34-3)  
[1] 130.5769  
> 
```


2. $((20 \cdot 3) - 14)^3$

Solution:

[illegible]

3. Absolute value of -88


Solution:



The screenshot shows a Jupyter Notebook interface with a dark theme. The top bar displays the username and host: `itmbu-20@itmbu20-V30a-24IIL: ~`. The terminal output shows the execution of the `abs(-88)` function, resulting in the output `[1] 88`. The terminal window has a scroll bar on the right side.

4. Base 10 logarithm of 72

Solution:



The screenshot shows a terminal window with a dark background. The title bar at the top reads "itmbu-20@itmbu20-V30a-24IIL: ~". On the left side, there is a vertical column of "v" characters. The main area of the terminal displays the output of a Jupyter Notebook cell. The code "log10(72)" is shown, followed by the output "[1] 1.857332". A small white cursor is visible at the bottom left of the terminal window.



The screenshot shows a Jupyter Notebook terminal window with a dark background. The window title bar at the top reads "itmbu-20@itmbu20-V30a-24IIL: ~". On the left side of the terminal, there is a vertical column of 15 right-pointing chevrons (>). The R code being executed is as follows:

```
> year_born=1984
> current_year=2021
> age=current_year-year_born
> age
[1] 37
> age>18
[1] TRUE
> 
```

The output of the code is displayed on the right side of the terminal, corresponding to the prompts on the left.

6. Given: formula for area of circle is $\pi \cdot r^2$ Given: Area = 100
a. Write statement to find r. (Hint: utilize “sqrt” and “pi” functions)

Solution:



The screenshot shows a Jupyter Notebook terminal window. The title bar at the top reads "itmbu-20@itmbu20-V30a-24IIL: ~". The terminal has a dark purple background with white text. On the left side, there is a vertical column of 18 right-pointing chevrons (>). The terminal content shows a series of commands and their output:

```
> area=100
> pi=3.14
> r=sqrt(area/pi)
> r
[1] 5.643326
```

A white cursor is positioned at the end of the last line of output.

7. Given: went to lunch and pre-tax bill was \$45.90
 - a. Compute subtotal: add NYC tax of 8.875%
 - b. Compute 15% tip on subtotal
 - c. Compute 20% tip on subtotal

Solution:

```
itmbu-20@itmbu20-V30a-24IIL: ~  
>  
>  
>  
>  
>  
>  
>  
>  
> pre_tax_bill=45.90  
> NYCtax=pre_tax_bill*(8.875/100)  
> NYCtax  
[1] 4.073625  
>  
> subtotal=pre_tax_bill+NYCtax  
> subtotal  
[1] 49.97362  
>  
> tip15=subtotal*(15/100)  
> tip15  
[1] 7.496044  
>  
> tip20=subtotal*(20/100)  
> tip20  
[1] 9.994725  
>
```

- 8.
- Assign a variable customers to 500
 - Assign a variable pizza_price to \$20
 - Assign a variable todays_revenue (customers * pizza_price) and compute today's revenue
 - Is today's revenue greater than yesterday's revenue of \$7,000 and less than tomorrow's projected revenue of \$11,000? Show the code that would answer the following question.

Solution:

```
itmbu-20@itmbu20-V30a-24IIL: ~  
>  
>  
>  
>  
>  
> customers=500  
> pizza=20  
> todays_revenue = customers * pizzza  
Error: object 'pizzza' not found  
> todays_revenue = customers * pizza  
> todays_revenue  
[1] 10000  
>  
> yesterdays_revenue=7000  
> todays_revenue > yesterdays_revenue  
[1] TRUE  
>  
> tomorrows_revenue=11000  
> todays_revenue < tomorrows_revenue  
[1] TRUE  
> todays_revenue > yesterdays_revenue & todays_revenue < tomorrows_revenue  
[1] TRUE  
> ☐
```
