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# MATH EXPRESSIONS

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- Q1.** Write a program that take two numbers & add them in a new variable. Print the result.

*Input Number 1: 13*

*Input Number 2: 9*

*Sum: 22*

- Q2.** Repeat Q1 for subtraction, multiplication, division & modulus.

*Input Number 1: 13*

*Input Number 2: 9*

*Sum: 22*

*Subtract: 4*

*Multiply: 117*

*Divide: 1.44*

*Modulus: 4*

- Q3.** Do the following using Mathematic Expressions

- Declare a variable & Initialize the variable with some number.
- Show the value of variable in your browser like “Initial value: 3”.
- Add 7 to the variable.
- Show the value of variable in your browser like “Value after addition is: 10”.
- Show the remainder after dividing the variable’s value by 3. Output : “The remainder is : 1”

*Initial value: 3*

*Value after addition is: 10*

*The remainder is: 1*

- Q4.** Cost of one movie ticket is 600 PKR. Store ticket price in a variable & calculate the cost of buying 5 tickets to a movie.

*Total Cost to buy 5 tickets to a movie is 3000 PKR*

**Q5.** Take a number input from user and print it's Multiplication Table. (Without using any loops).

*Input a number: 4*

*Multiplication Table of 4*

$$4 \times 1 = 4$$

$$4 \times 2 = 8$$

$$4 \times 3 = 12$$

$$4 \times 4 = 16$$

$$4 \times 5 = 20$$

$$4 \times 6 = 24$$

$$4 \times 7 = 28$$

$$4 \times 8 = 32$$

$$4 \times 9 = 36$$

$$4 \times 10 = 40$$

**Q6. The Temperature Converter:** It's hot out! Let's make a converter based on the steps here.

- Store a Celsius temperature into a variable.
- Convert it to Fahrenheit & output "NNC is NNF".
- Now store a Fahrenheit temperature into a variable.
- Convert it to Celsius & output "NNF is NNC".

Conversion Formula:

$$^{\circ}\text{C} = (^{\circ}\text{F} - 32) \times 5 / 9$$

$$^{\circ}\text{F} = (^{\circ}\text{C} \times 9 / 5) + 32$$

*12C is 53.6F*

*68F is 20C*

**Q7.** Take input total marks & marks obtained by a student. Compute the percentage & print the result.

*Marks Sheet*

*Total Marks: 1200*

*Marks Obtained: 900*

*Percentage: 75%*

**Q8.** Write a program to implement checkout process of a shopping cart system for an e-commerce website. Store the following in variables:

- a) Price of item 1
- b) Price of item 2
- c) Ordered quantity of item 1
- d) Ordered Quantity of item 2
- e) Shipping charges

Compute the total cost & print the receipt.

*Shopping Cart*

*Price of Item#1 is 560*

*Quantity of Item#1 is 2*

*Price of Item#2 is 200*

*Quantity of Item#2 is 5*

*Shipping Charges: 150*

*Total Cost of your order is 2270 PKR*

**Q9.** Assume we have 10 US dollars & 25 Saudi Riyals. Write a Python Script to convert the total currency to Pakistani Rupees. Perform all calculations in a single expression.

(Exchange rates: **1 US Dollar = 104 Pakistani Rupee** and **1 Saudi Riyal = 28 Pakistani Rupee**)

*Currency in PKR*

*US Dollars: 10*

*Saudi Riyals: 25*

*Total Currency in PKR: 1740*

**Q10.** Write a program to initialize a variable with some number and do arithmetic in following sequence:

- a) Add 5
- b) Multiply by 10
- c) Divide the result by 2

Perform all calculations in a single expression.

**Q11. The Age Calculator:** Forgot how old someone is? Calculate it!

- a) Store the current year in a variable.
- b) Store their birth year in a variable.
- c) Calculate their 2 possible ages based on the stored values.

Output them to the screen like so: "They are either NN or NN years old".

*The Age Calculator*

*Current Year: 2015*

*Birth Year: 1992*

*They are either 23 or 24 years old.*

**Q12. The Geometrizer:** Calculate properties of a circle.

- a. Store a radius into a variable.
  - b. Calculate the circumference based on the radius, and output "The circumference is NN". (*Hint: Circumference of a circle =  $2 \pi r$ ,  $\pi = 3.142$* )
- Calculate the area based on the radius, and output "The area is NN". (*Hint: Area of a circle =  $\pi r^2$ ,  $\pi = 3.142$* )

*The Geometrizer*

*Radius of a circle: 12*

*Circumference: 75.408*

*Area: 452.448*

**Q13. The Lifetime Supply Calculator:** Ever wonder how much a "lifetime supply" of your favorite snack is? Wonder no more.

- a) Store your favorite snack into a variable
- b) Store your current age into a variable.
- c) Store a maximum age into a variable.
- d) Store an estimated amount per day (as a number).
- e) Calculate how many would you eat total for the rest of your life.

Print the result to the screen like so: "You will need NNNN to last you until the ripe old age of NN".

*The Lifetime Supply Calculator*

*Favorite Snacks: Oreo Biscuits*

*Current Age: 15*

*Estimated Maximum Age: 85*

*Amount of snacks Per Day: 2*

*You will need 140 Oreo Biscuits to last you until the ripe old age of 85.*