JavaScript Assignments-1

Assignment-1

***Arithmetic operators Given two numeric variables, a and b,***

***write the following:(Take input from user)***

1. Create a variable **add**, and assign it the sum of a and b.

2. Create a variable **sub**, and assign it result of b subtracted from a.

3. Create a variable **mul**, and assign it the product of a and b.

4. Create a variable **div**, and assign it the result of a divided by b.

5. Create a variable, **inc**, and assign it the pre-incremented value of a

6. Create a variable **dec**, and assign it the pre-decremented value of b

Answer:

**Explanation:**

1. The variable **add** is assigned the result of adding a and b. **Sum (add):**

2. The variable **sub** is assigned the result of subtracting b from a. **Subtraction (sub):**

3. The variable **mul** is assigned the result of multiplying a by b. **Multiplication (mul):**

4. The variable **div** is assigned the result of dividing a by b. **Division (div):**

5. The value of a is incremented before assigning it to **inc** using **a++.**  **Pre-increment (inc):**

6. The value of b is decremented before assigning it to **dec** using **b--.**  **Pre-decrement (dec):**

**When you run this script in a JavaScript environment (like a browser), it will prompt the user for the values of `a` and `b`, then display the results of the arithmetic operations in the console.**

These are the outputs when you run the operations with the values a = 1 and b = 2 .

**// Taking input from the user:**

let a = parseInt(prompt("Enter the value for a:"));

let b = parseInt(prompt("Enter the value for b:"));

let add = a + b; **// 1. Sum of a and b 1).Eg. of (add):**  var add = a + b; // add = 1 + 2

console.log ("The sum of " + a + " and " + b + " is: " + add); console.log(add); // Output: 3

let sub = a - b; **// 2. Result of b subtracted from a 2).Eg. of (sub):**  var sub = a - b; // sub = 1 - 2

console.log ("The result of " + a + " subtracted by " + b + " is: " + sub); console.log(sub); // Output: -1

let mul = a \* b; **// 3. Product of a and b 3).Eg. of (mul):** var mul = a \* b; // mul = 1 \* 2

console.log ("The product of " + a + " and " + b + " is: " + mul); console.log(mul); // Output: 2

let div = a / b; **// 4. Result of a divided by b 4).Eg. of (div):**  var div = a / b; // div = 1 / 2

console.log ("The result of " + a + " divided by " + b + " is: " + div); console.log(div); // Output: 0.5

let inc = a; **// 5. Pre-incremented value of a a++; 5).Eg. of (inc):**  a++; // a is incremented to 2

console.log ("The pre-incremented value of a is: " + inc); var inc = a; // inc = 2

console.log(inc); // Output: 2

let dec = b; **// 6. Pre-decremented value of b b--; 6).Eg. of (dec):**  b--; // b is decremented to 1

console.log ("The pre-decremented value of b is: " + dec); var dec = b; // dec = 1

console.log(dec); // Output: 1

**Solve the following (need to mention the values of a and b at every step):**

**// solve var a=5; var b=8**

**var d=++a + ++a - --b + b - --a + a++ + (a++ \* ++b) + (a-- / --b)**

**var e= a++ - b++ + (--b \* a++) + b++ + b +a + ++a + (a++ % b++)**

**var g= b-- -b + --b +b + ++b -a + ++b -b + b++ - a++ + b++ +b**

**var h=a++ + b + ++a + (--a\*b) +b - (b/a) + (a/b) + (a\*\*b)+(a\*2)++ + ++(b\*2)**

Answer for each var is… and for every problem value of a & b is **( var a=5; and var b=8)**😉:

Step-by-Step Evaluation:

**1.) var d = ++a + ++a - --b + b - --a + a++ + (a++ \* ++ b) + (a-- / --b)**

**=** 6 + 7 − 7 + 7 – 6 + 6 +( 56 ) + (1.1429) var d=70.1429

Step-by-Step Evaluation:

**2.) var e = a++ - b++ + (--b \* a++) + b++ + b + a + ++a + (a++ % b++)**

**=** 5 − 8 + 48 + 8 + 9 + 7 + 8 + 8 var e=85

Step-by-Step Evaluation:

**3.) var g = b-- - b + --b + b + ++b - a + ++b - b + b++ - a++ + b++ + b**

= 8 − 7 + 6 + 6 + 7 − 5 + 8 − 8 + 8 − 5 + 9 + 10 var g=37

Step-by-Step Evaluation:

**4.) var h = a++ + b + ++a + (--a\*b) + b - (b/a) + (a/b) + (a\*\*b) + (a\*2) ++ + ++(b\*2)**

= 5 + 8 + 7 + 48 + 8 − 1.33 + 0.75 + 1679616 + 12 + 16 var h=1679719.42

**Q3.Write a JavaScript code to calculate and print the power of 2 raised to the 3rd power.**

ANSWER:

It’s simple code to calculate & print the power of 2 raised to the 3rd power:

**// Calculate 2 raised to the power of 3**

let base = 2;

let exponent = 3;

let result = base \*\* exponent;

// let’s Print the result

console.log(`${base} raised to the power of ${exponent} is ${result}`);

**Explanation:**

let base = 2; sets the base number to 2.

let exponent = 3; sets the exponent to 3.

let result = base \*\* exponent; calculates 2 raised to the power of 3 using the exponentiation operator **\*\*.**

**console.log(...) P**rints the result to the console.

output: **2 raised to the power of 3 is 8**

**Q4. Write a JavaScript code to calculate and print area of triangle, rectangle, circle, Square. Take input from the users.**

ANSWER:

Let’s calculates and prints the, rectangle, circle, and square based on user input:

**1. area of a triangle** // Function to calculate the area of a triangle

function Calculate Triangle Area (base, height ) { return 0.5 \* base \* height; }

**// Take input from the user for the area of a triangle**

let base = parseFloat(prompt("Enter the base of the triangle:"));

let height = parseFloat(prompt("Enter the height of the triangle:"));

let triangleArea = calculateTriangleArea(base, height);

console. Log (`The area of the triangle is ${triangleArea}`);

**2. area of a rectangle** // Function to calculate the area of a rectangle

function calculateRectangleArea(length, width) { return length \* width; }

**// Take input from the user for the area of a rectangle**

let length = parseFloat(prompt("Enter the length of the rectangle:"));

let width = parseFloat(prompt("Enter the width of the rectangle:"));

let rectangleArea = calculateRectangleArea(length, width);

console.log(`The area of the rectangle is ${rectangleArea}`);

**3. area of a circle** // Function to calculate the area of a circle

function calculateCircleArea(radius) { return Math.PI \* radius \* radius; }

**// Take input from the user for the area of a circle**

let radius = parseFloat(prompt("Enter the radius of the circle:"));

let circleArea = calculateCircleArea(radius);

console.log(`The area of the circle is ${circleArea}`);

**4. area of a square** // Function to calculate the area of a square

function calculateSquareArea(side) { return side \* side; }

**// Take input from the user for the area of a square**

let side = parseFloat(prompt("Enter the side of the square:"));

let squareArea = calculateSquareArea(side);

console.log(`The area of the square is ${squareArea}`);

JavaScript Assignments-2

Level-1:

**1. Declare firstName, lastName, country, city, age, isMarried, and year variable and assign value to it and**

**use the type of operator to check different data types.**

**ANSWER:** Declare Variables and Use typeof to Check Data Types:

**// Declare variables**

let firstName = "DHARMASOTH";

let lastName = "RAHUL";

let country = "INDIA";

let city = "HYDERABAD";

let age = 23;

let isMarried = false;

let year = 2024;

**// Check data types using typeof**

console.log(typeof firstName); // string

console.log(typeof lastName); // string

console.log(typeof country); // string

console.log(typeof city); // string

console.log(typeof age); // number

console.log(typeof isMarried); // boolean

console.log(typeof year); // number

**2. Check if the type of '10' is equal to 10**

ANS: console.log(typeof '10' === typeof 10); // false… Explanation: '10' is a string, and 10 is a number, so their types are not equal

**3. Check if parseInt('9.8') is equal to 10**

ANS: console.log(parseInt('9.8') === 10); // false Explanation: parseInt('9.8') returns 9, not 10, so they are not equal.

**4. The boolean value is either true or false.**

**Truthy Values:**

**console.log(Boolean(1));** // true (any non-zero number is truthy)

**console.log(Boolean('Hello'));** // true (non-empty string is truthy)

**console.log(Boolean([]));** // true (empty array is truthy)

**False Values:**

**console.log(Boolean(0));** // false (zero is falsy)

**console.log(Boolean(''));** // false (empty string is falsy)

**console.log(Boolean(null));** // false (null is falsy)

**5. Given the following declarations, what are the new values of each variable after the given statement?**

New Values of Variables After the Given Statements:

**● var x=10;**

**● var y=15;**

**● var z=6;**

**● var a,b,c;**

**1. x += 2\*y;** x = x + 2 \* y; // x = 10 + 2 \* 15 = 10 + 30 = 40

**2. y-= x /--z;** z = 5; // z is decremented first (pre-decrement) y = y - x / z; // y = 15 - 40 / 5 = 15 - 8 = 7

**3.z += x-- + 5;** z = z + x + 5; // z = 5 + 40 + 5 = 50 x = 39; // x is decremented after the operation (post-decrement)

**4.y /= z + 2;** y = y / (z + 2); // y = 7 / (50 + 2) = 7 / 52 ≈ 0.1346

**5.x \*= ++y- z--;** y = y + 1; // pre-increment y: y ≈ 1.1346 x = x \* (y - z); // x = 39 \* (1.1346 - 50) = 39 \* (-48.8654) ≈ -1905.75

z = 49; // z is decremented after the operation (post-decrement)

**6. Figure out the result of the following comparison**

**4>3 :** console.log(4 > 3); **// true**

**4>=3:** console.log(4 >= 3); **// true**

**4<3:** console.log(4 < 3); **// false**

**4<=3:** onsole.log(4 <= 3); **// false**

**4==4:** console.log(4 == 4); **// true**

**4===4:** console.log(4 === 4**);// true**

**4!=4:** console.log(4 != 4**); // false**

**4!==4:** console.log(4 !== 4**);// false**

**4!= '4':** console.log(4 != '4'); **// false**

**4=='4':** console.log(4 == '4'); **// true**

**4 ==='4':** console.log(4 === '4'**);// false**

**7. Figure out the result of the following expressions**

**❖ 4>3 && 10<12:** console.log(4 > 3 && 10 < 12); **// true**

**❖ 4>3 && 10>12:** console.log(4 > 3 && 10 > 12); **// false**

**❖ 4>3 || 10<12:** console.log(4 > 3 || 10 < 12); **// true**

**❖ 4>3 || 10>12:** console.log(4 > 3 || 10 > 12); **// true**

**❖ !(4 >3):** console.log(!(4 > 3)); **// false**

**❖ !(4 <3):** console.log(!(4 < 3)); **// true**

**❖ !(false):** console.log(!(false**)); // true**

**❖ !(4 >3&&10<12):** console.log(!(4 > 3 && 10 < 12)); **// false**

**❖ !(4 >3&&10>12):** console.log(!(4 > 3 && 10 > 12)); **// true**

**❖ !(4 ==='4'):** console.log(!(4 === '4'**)); // true**

Level-2:

**Q 1. Calculate the Area of a Triangle**

let base = parseFloat(prompt("Enter the base of the triangle:"));

let height = parseFloat(prompt("Enter the height of the triangle:"));

let areaTriangle = 0.5 \* base \* height;

console.log(`The area of the triangle is ${areaTriangle}`);

**Q2. Calculate the Perimeter of a Triangle**

let sideA = parseFloat(prompt("Enter side A of the triangle:"));

let sideB = parseFloat(prompt("Enter side B of the triangle:"));

let sideC = parseFloat(prompt("Enter side C of the triangle:"));

let perimeterTriangle = sideA + sideB + sideC;

console.log(`The perimeter of the triangle is ${perimeterTriangle}`);

**Q3. Calculate the Area and Perimeter of a Rectangle**

let length = parseFloat(prompt("Enter the length of the rectangle:"));

let width = parseFloat(prompt("Enter the width of the rectangle:"));

let areaRectangle = length \* width;

let perimeterRectangle = 2 \* (length + width);

console.log(`The area of the rectangle is ${areaRectangle}`);

console.log(`The perimeter of the rectangle is ${perimeterRectangle}`);

**Q4. Calculate the Area and Circumference of a Circle**

let radius = parseFloat(prompt("Enter the radius of the circle:"));

let pi = 3.14; let areaCircle = pi \* radius \* radius;

let circumferenceCircle = 2 \* pi \* radius;

console.log(`The area of the circle is ${areaCircle}`);

console.log(`The circumference of the circle is ${circumferenceCircle}`);

**Q5. Calculate the Slope, X-Intercept, and Y-Intercept of y = 2x – 2**

let slope = 2; // Slope (m) is 2 in the equation y = 2x - 2

let yIntercept = -2; // The y-intercept is -2

let xIntercept = -yIntercept / slope; // x-intercept is when y = 0

console.log(`The slope is ${slope}`);

console.log(`The x-intercept is ${xIntercept}`);

console.log(`The y-intercept is ${yIntercept}`);

**Q 6. Calculate the Slope Between Two Points**

let x1 = 2, y1 = 2;

let x2 = 6, y2 = 10;

let slopeBetweenPoints = (y2 - y1) / (x2 - x1);

console.log(`The slope between the points (2, 2) and (6, 10) is ${slopeBetweenPoints}`);

**Q 7. Calculate Pay Based on Hours and Rate**

let hours = parseFloat(prompt("Enter the number of hours worked:"));

let ratePerHour = parseFloat(prompt("Enter the rate per hour:"));

let pay = hours \* ratePerHour;

console.log(`The total pay is ${pay}`);

**Q8. Find the Sum of Two Numbers**

let num1 = parseFloat(prompt("Enter the first number:"));

let num2 = parseFloat(prompt("Enter the second number:"));

let sum = num1 + num2;

console.log(`The sum of the two numbers is ${sum}`);

**Q9. Find the Division of Two Numbers**

let dividend = parseFloat(prompt("Enter the dividend:"));

let divisor = parseFloat(prompt("Enter the divisor:"));

let divisionResult = dividend / divisor;

console.log(`The result of the division is ${divisionResult}`);

**Q 10. Find the Average of Five Numbers**

let totalSum = 0;

for (let i = 1; i <= 5; i++) {

let number = parseFloat(prompt(`Enter number ${i}:`));

totalSum += number;

}

let average = totalSum / 5;

console.log(`The average of the five numbers is ${average}`);

**Q11. Convert Seconds into Hours**

let seconds = parseFloat(prompt("Enter the number of seconds:"));

let hours = seconds / 3600;

console.log(`${seconds} seconds is equal to ${hours} hours`);

**Q 12. Convert Meters into Millimeters**

let meters = parseFloat(prompt("Enter the number of meters:"));

let millimeters = meters \* 1000;

console.log(`${meters} meters is equal to ${millimeters} millimeters`);

**Q 13. Convert Rupees into Dollars**

let rupees = parseFloat(prompt("Enter the amount in rupees:"));

let conversionRate = 82; // Example conversion rate

let dollars = rupees / conversionRate;

console.log(`${rupees} rupees is equal to ${dollars.toFixed(2)} dollars`);

**Q14. Find the Simple Interest**

let principal = parseFloat(prompt("Enter the principal amount:"));

let rate = parseFloat(prompt("Enter the interest rate:"));

let time = parseFloat(prompt("Enter the time period in years:"));

let simpleInterest = (principal \* rate \* time) / 100;

console.log(`The simple interest is ${simpleInterest}`);

**Q15. Compare Two Numbers Using a Ternary Operator**

let a = parseFloat(prompt("Enter the first number:"));

let b = parseFloat(prompt("Enter the second number:"));

let comparisonResult = a > b ? "a is greater than b" : "a is less than b";

console.log(comparisonResult);

**Q 16. Check if a Number is Even or Odd Using a Ternary Operator**

let number = parseFloat(prompt("Enter a number:"));

let evenOdd = number % 2 === 0 ? "The number is even" : "The number is odd";

console.log(evenOdd);

**Q17. Check if a Number is Positive or Negative Using a Ternary Operator**

let number2 = parseFloat(prompt("Enter a number:"));

let positiveNegative = number2 > 0 ? "The number is positive" : "The number is negative";

console.log(positiveNegative);

**Q18. Check if a Number is Divisible by 5 Using a Ternary Operator**

let number3 = parseFloat(prompt("Enter a number:"));

let divisibleByFive = number3 % 5 === 0 ? "The number is divisible by 5" : "The number is not divisible by 5";

console.log(divisibleByFive);

**Q 19. Check if a Number is Divisible by 2, 3, and 4 Using a Ternary Operator**

let number4 = parseFloat(prompt("Enter a number:"));

let divisibleBy2\_3\_4 = (number4 % 2 === 0 && number4 % 3 === 0 && number4 % 4 === 0)

? "The number is divisible by 2, 3, and 4"

: "The number is not divisible by 2, 3, and 4";

console.log(divisibleBy2\_3\_4);

**Q20. Check if a Year is a Leap Year or Not**

let year = parseFloat(prompt("Enter a year:"));

let isLeapYear = (year % 4 === 0 && (year % 100 !== 0 || year % 400 === 0))

? "The year is a leap year"

: "The year is not a leap year";

console.log(isLeapYear);