Math Practice JS Coding Problems

This guide contains beginner coding problems using only simple line-by-line math calculations. No functions are used - just basic variables, operators, and control structures like loops and conditionals.

1. Basic Arithmetic Operations

1.1 Add Two Numbers

Simple addition of two numbers.

```
// Define two numbers
let num1 = 5;
let num2 = 3;

// Add them together
let sum = num1 + num2;

console.log("Sum:", sum);  // Output: 8

// Another example
let a = 10;
let b = 20;
let result = a + b;
console.log("Result:", result);  // Output: 30
```

1.2 Subtract Two Numbers

Simple subtraction.

```
// Define two numbers
let num1 = 10;
let num2 = 3;

// Subtract
let difference = num1 - num2;

console.log("Difference:", difference);  // Output: 7

// Can result in negative
let x = 5;
let y = 8;
let result = x - y;
console.log("Result:", result);  // Output: -3
```

1.3 Multiply Two Numbers

Simple multiplication.

```
// Define two numbers
let num1 = 4;
let num2 = 5;

// Multiply
```

```
let product = num1 * num2;

console.log("Product:", product);  // Output: 20

// Negative numbers
let a = -3;
let b = 4;
let result = a * b;
console.log("Result:", result);  // Output: -12
```

1.4 Divide Two Numbers

Division and finding remainder.

```
// Division
let num1 = 10;
let num2 = 2;
let quotient = num1 / num2;
console.log("Quotient:", quotient);  // Output: 5

// Division with decimal result
let a = 7;
let b = 2;
let result = a / b;
console.log("Result:", result);  // Output: 3.5

// Finding remainder using modulo (%)
let dividend = 17;
let divisor = 5;
let remainder = dividend % divisor;
console.log("Remainder:", remainder);  // Output: 2

// Integer division (floor)
let x = 17;
let y = 5;
let intQuotient = Math.floor(x / y);
console.log("Integer quotient:", intQuotient);  // Output: 3
```

1.5 Check if Number is Even or Odd

Use modulo operator to check even/odd.

```
// Check if number is even
let num = 4;
let remainder = num % 2;

if (remainder === 0) {
    console.log(num + " is even");
} else {
    console.log(num + " is odd");
}

// Another example
let number = 7;
if (number % 2 === 0) {
    console.log("Even");
} else {
    console.log("Odd");  // This will print
}

// Multiple checks
let n1 = 10;
let n2 = 15;
console.log(n1 + " is even:", n1 % 2 === 0);  // Output: true
console.log(n2 + " is even:", n2 % 2 === 0);  // Output: false
```

1.6 Calculate Average of Numbers

Find the average of a group of numbers.

```
// Average of two numbers
let num1 = 10;
let num2 = 20;
let sum = num1 + num2;
let count = 2;
let average = sum / count;
console.log("Average:", average);  // Output: 15

// Average of three numbers
let a = 5;
let b = 10;
let c = 15;
let total = a + b + c;
let avg = total / 3;
console.log("Average:", avg);  // Output: 10

// Average of four numbers
let n1 = 100;
let n2 = 200;
let n3 = 300;
let n4 = 400;
let sumAll = n1 + n2 + n3 + n4;
let avgAll = sumAll / 4;
console.log("Average:", avgAll);  // Output: 250
```

1.7 Sum Multiple Numbers

Add several numbers together.

```
// Sum of multiple numbers
let n1 = 1;
let n2 = 2;
let n3 = 3;
let n4 = 4;
let n5 = 5;

let sum = n1 + n2 + n3 + n4 + n5;
console.log("Sum:", sum);  // Output: 15

// Building up sum step by step
let total = 0;
total = total + 10;  // total is now 10
total = total + 20;  // total is now 30
total = total + 30;  // total is now 60
console.log("Total:", total);  // Output: 60

// Using += operator (shorthand)
let result = 0;
result += 5;   // same as: result = result + 5
result += 10;  // same as: result = result + 10
result += 15;  // same as: result = result + 15
console.log("Result:", result);  // Output: 30
```

1.8 Calculate Absolute Value

Find the absolute value (distance from zero).

```
// Absolute value of positive number
let num1 = 10;
let abs1;
if (num1 < 0) {
    abs1 = -num1;
} else {
    abs1 = num1;
}
```

```
console.log("Absolute:", abs1);  // Output: 10

// Absolute value of negative number
let num2 = -5;
let abs2;
if (num2 < 0) {
    abs2 = -num2;
} else {
    abs2 = num2;
}
console.log("Absolute:", abs2);  // Output: 5

// Using Math.abs (built-in)
let num3 = -25;
let abs3 = Math.abs(num3);
console.log("Absolute:", abs3);  // Output: 25
```

2. Simple Number Operations

2.1 Check if Number is Positive, Negative, or Zero

Determine the sign of a number.

```
// Check number sign
let num = 5;

if (num > 0) {
    console.log("Positive");
} else if (num < 0) {
    console.log("Negative");
} else {
    console.log("Zero");
}

// Multiple examples
let n1 = -3;
if (n1 > 0) {
    console.log(n1 + " is positive");
} else if (n1 < 0) {
    console.log(n1 + " is negative");  // This prints
} else {
    console.log(n1 + " is zero");
}

let n2 = 0;
if (n2 === 0) {
    console.log("The number is zero");  // This prints
}
```

2.2 Round Decimal Numbers

Round numbers up, down, or to nearest integer.

```
// Round up (ceiling)
let num1 = 4.3;
let roundedUp = Math.ceil(num1);
console.log("Rounded up:", roundedUp);  // Output: 5

// Round down (floor)
let num2 = 4.9;
let roundedDown = Math.floor(num2);
console.log("Rounded down:", roundedDown);  // Output: 4

// Round to nearest
let num3 = 4.5;
let rounded = Math.round(num3);
console.log("Rounded:", rounded);  // Output: 5

let num4 = 4.4;
let rounded2 = Math.round(num4);
console.log("Rounded:", rounded2);  // Output: 4

// Round to decimal places
let num5 = 3.14159;
let rounded3 = Math.round(num5 * 100) / 100;
console.log("2 decimals:", rounded3);  // Output: 3.14
```

2.3 Temperature Conversion

Convert between Celsius and Fahrenheit.

```
// Celsius to Fahrenheit: (C * 9/5) + 32
let celsius = 0;
let fahrenheit = (celsius * 9 / 5) + 32;
```

```
console.log(celsius + "°C = " + fahrenheit + "°F");  // Output: 0°C = 32°F

// Another example
let c = 100;
let f = (c * 9 / 5) + 32;
console.log(c + "°C = " + f + "°F");  // Output: 100°C = 212°F

// Fahrenheit to Celsius: (F - 32) * 5/9
let fahr = 32;
let cels = (fahr - 32) * 5 / 9;
console.log(fahr + "°F = " + cels + "°C");  // Output: 32°F = 0°C

// Another conversion
let f2 = 98.6;
let c2 = (f2 - 32) * 5 / 9;
console.log(f2 + "°F = " + c2 + "°C");  // Output: 98.6°F = 37°C
```

2.4 Calculate Percentage

Calculate percentages and percentage of a number.

```
// What percentage is 25 of 100?
let part = 25;
let total = 100;
let percentage = (part / total) * 100;
console.log("Percentage:", percentage + "%");  // Output: 25%

// Find 20% of 100
let percent = 20;
let number = 100;
let result = (percent / 100) * number;
console.log("20% of 100 =", result);  // Output: 20

// Find 15% of 200
let pct = 15;
let num = 200;
let answer = (pct / 100) * num;
console.log("15% of 200 =", answer);  // Output: 30

// Percentage increase
let original = 50;
let newValue = 75;
let increase = newValue - original;
let pctIncrease = (increase / original) * 100;
console.log("Increase:", pctIncrease + "%");  // Output: 50%
```

2.5 Find Larger or Smaller Number

Compare two numbers.

```
// Find maximum of two numbers
let num1 = 10;
let num2 = 20;
let max;

if (num1 > num2) {
    max = num1;
} else {
    max = num2;
}
console.log("Maximum:", max);  // Output: 20

// Find minimum of two numbers
let a = 15;
let b = 8;
let min;

if (a < b) {
    min = a;
} else {
```

```
    min = b;
}
console.log("Minimum:", min);  // Output: 8

// Using Math.max and Math.min
let x = 5;
let y = 12;
let maximum = Math.max(x, y);
let minimum = Math.min(x, y);
console.log("Max:", maximum);  // Output: 12
console.log("Min:", minimum);  // Output: 5
```

2.6 Swap Two Variables

Exchange values of two variables.

```
// Swap using temporary variable
let a = 5;
let b = 10;
console.log("Before: a=" + a + ", b=" + b);

let temp = a;  // temp = 5
a = b;         // a = 10
b = temp;      // b = 5
console.log("After: a=" + a + ", b=" + b);

// Swap using arithmetic
let x = 3;
let y = 7;
console.log("Before: x=" + x + ", y=" + y);

x = x + y;  // x = 10
y = x - y;  // y = 3
x = x - y;  // x = 7
console.log("After: x=" + x + ", y=" + y);

// Swap using array destructuring (modern JavaScript)
let m = 100;
let n = 200;
[m, n] = [n, m];
console.log("m=" + m + ", n=" + n);  // m=200, n=100
```

2.7 Calculate Simple Interest

Formula: (Principal × Rate × Time) / 100

```
// Calculate simple interest
let principal = 1000;
let rate = 5;       // 5% per year
let time = 2;       // 2 years

let interest = (principal * rate * time) / 100;
console.log("Interest:", interest);  // Output: 100

// Total amount (principal + interest)
let totalAmount = principal + interest;
console.log("Total amount:", totalAmount);  // Output: 1100

// Another example
let p = 5000;
let r = 8;
let t = 3;
let si = (p * r * t) / 100;
console.log("Simple Interest:", si);  // Output: 1200

let total = p + si;
console.log("Total:", total);  // Output: 6200
```

3. Basic Counting & Loops

3.1 Count from 1 to N

Use a for loop to count.

```
// Count from 1 to 5
for (let i = 1; i <= 5; i++) {
    console.log(i);
}
// Output: 1 2 3 4 5 (each on new line)

// Count from 1 to 10
let n = 10;
for (let i = 1; i <= n; i++) {
    console.log(i);
}

// Using while loop
let count = 1;
while (count <= 5) {
    console.log(count);
    count++;
}
```

3.2 Print Multiplication Table

Generate multiplication table for a number.

```
// Multiplication table for 5
let num = 5;

for (let i = 1; i <= 10; i++) {
    let result = num * i;
    console.log(num + " x " + i + " = " + result);
}

/* Output:
5 x 1 = 5
5 x 2 = 10
5 x 3 = 15
...
5 x 10 = 50
*/

// Table for 7 (up to 5)
let n = 7;
for (let i = 1; i <= 5; i++) {
    console.log(n + " x " + i + " = " + (n * i));
}
```

3.3 Count Digits in a Number

Count how many digits are in a number.

```
// Count digits using loop
let num = 12345;
let count = 0;

// Make a copy to work with
let temp = num;

while (temp > 0) {
    temp = Math.floor(temp / 10);
    count++;
}
```

```
console.log("Number of digits:", count);  // Output: 5

// Count digits by converting to string
let number = 9876;
let str = number.toString();
let digitCount = str.length;
console.log("Digits:", digitCount);  // Output: 4

// Handle negative numbers
let neg = -999;
let absNum = Math.abs(neg);
let strNum = absNum.toString();
console.log("Digits:", strNum.length);  // Output: 3
```

3.4 Sum of Digits

Add all digits in a number.

```
// Sum of digits using loop
let num = 123;
let sum = 0;
let temp = num;

while (temp > 0) {
    let digit = temp % 10;
    sum = sum + digit;
    temp = Math.floor(temp / 10);
}

console.log("Sum of digits:", sum);  // Output: 6 (1+2+3)

// Another example
let number = 9875;
let total = 0;

while (number > 0) {
    total += number % 10;
    number = Math.floor(number / 10);
}

console.log("Sum:", total);  // Output: 29 (9+8+7+5)
```

3.5 Reverse the Digits of a Number

Reverse the order of digits.

```
// Reverse digits of a number
let num = 12345;
let reversed = 0;

while (num > 0) {
    let digit = num % 10;
    reversed = reversed * 10 + digit;
    num = Math.floor(num / 10);
}

console.log("Reversed:", reversed);  // Output: 54321

// Another example
let original = 789;
let rev = 0;
let temp = original;

while (temp > 0) {
    rev = rev * 10 + (temp % 10);
    temp = Math.floor(temp / 10);
}

console.log("Original:", original);  // Output: 789
console.log("Reversed:", rev);       // Output: 987
```

3.6 Check if Number is a Palindrome

Check if number reads same forwards and backwards.

```
// Check if number is palindrome
let num = 121;
let original = num;
let reversed = 0;

while (num > 0) {
    reversed = reversed * 10 + (num % 10);
    num = Math.floor(num / 10);
}

if (original === reversed) {
    console.log(original + " is a palindrome");
} else {
    console.log(original + " is not a palindrome");
}

// Another example
let n = 12321;
let temp = n;
let rev = 0;

while (temp > 0) {
    rev = rev * 10 + (temp % 10);
    temp = Math.floor(temp / 10);
}

let isPalindrome = (n === rev);
console.log(n + " palindrome?", isPalindrome);  // Output: true
```

4. Simple Array Operations

4.1 Get First and Last Element

Access array elements by index.

```
// Create an array
let numbers = [10, 20, 30, 40, 50];

// Get first element (index 0)
let first = numbers[0];
console.log("First:", first);  // Output: 10

// Get last element
let lastIndex = numbers.length - 1;
let last = numbers[lastIndex];
console.log("Last:", last);  // Output: 50

// Another array
let fruits = ["apple", "banana", "orange"];
let firstFruit = fruits[0];
let lastFruit = fruits[fruits.length - 1];
console.log("First:", firstFruit);  // Output: apple
console.log("Last:", lastFruit);    // Output: orange
```

4.2 Count Elements in Array

Find array length and count specific elements.

```
// Count total elements
let numbers = [1, 2, 3, 4, 5];
let count = numbers.length;
console.log("Total elements:", count);  // Output: 5

// Count specific element
let arr = [1, 2, 3, 2, 4, 2, 5];
let target = 2;
let occurrences = 0;

for (let i = 0; i < arr.length; i++) {
    if (arr[i] === target) {
        occurrences++;
    }
}

console.log("Count of " + target + ":", occurrences);  // Output: 3
```

4.3 Check if Element Exists

Search for an element in array.

```
// Check if element exists
let numbers = [1, 2, 3, 4, 5];
let searchFor = 3;
let found = false;

for (let i = 0; i < numbers.length; i++) {
    if (numbers[i] === searchFor) {
        found = true;
        break;
    }
}

if (found) {
    console.log(searchFor + " exists in array");
} else {
    console.log(searchFor + " does not exist");
```

```
}

// Find index of element
let arr = [10, 20, 30, 40];
let element = 30;
let index = -1;

for (let i = 0; i < arr.length; i++) {
    if (arr[i] === element) {
        index = i;
        break;
    }
}

console.log("Index:", index);  // Output: 2
```

4.4 Sum All Elements in Array

Add all numbers in an array.

```
// Sum all elements
let numbers = [1, 2, 3, 4, 5];
let sum = 0;

for (let i = 0; i < numbers.length; i++) {
    sum = sum + numbers[i];
}

console.log("Sum:", sum);  // Output: 15

// Another example
let values = [10, 20, 30, 40];
let total = 0;

for (let i = 0; i < values.length; i++) {
    total += values[i];
}

console.log("Total:", total);  // Output: 100
```

4.5 Sum of First N Natural Numbers

Calculate 1 + 2 + 3 + ... + n

```
// Using loop
let n = 5;
let sum = 0;

for (let i = 1; i <= n; i++) {
    sum = sum + i;
}

console.log("Sum:", sum);  // Output: 15 (1+2+3+4+5)

// Using formula: n * (n + 1) / 2
let num = 10;
let result = (num * (num + 1)) / 2;
console.log("Sum:", result);  // Output: 55

// Another example with loop
let number = 100;
let total = 0;
for (let i = 1; i <= number; i++) {
    total += i;
}
console.log("Sum 1 to 100:", total);  // Output: 5050
```

4.6 Find Maximum in Array

Find the largest number in an array.

```
    // Find maximum value
    let numbers = [3, 7, 1, 9, 2, 5];
    let max = numbers[0];  // Start with first element

    for (let i = 1; i < numbers.length; i++) {
        if (numbers[i] > max) {
            max = numbers[i];
        }
    }

    console.log("Maximum:", max);  // Output: 9

    // Find minimum value
    let arr = [15, 8, 23, 4, 42, 16];
    let min = arr[0];

    for (let i = 1; i < arr.length; i++) {
        if (arr[i] < min) {
            min = arr[i];
        }
    }

    console.log("Minimum:", min);  // Output: 4
```

5. Basic String Operations

5.1 Get Length of String

Count characters in a string.

```
// Get string length
let str = "Hello";
let length = str.length;
console.log("Length:", length);  // Output: 5

// Another example
let text = "JavaScript";
let charCount = text.length;
console.log("Characters:", charCount);  // Output: 10

// Count without spaces
let sentence = "Hello World";
let noSpaces = sentence.replace(/ /g, '');
let count = noSpaces.length;
console.log("Length without spaces:", count);  // Output: 10
```

5.2 Convert String Case

Change string to uppercase or lowercase.

```
// Convert to uppercase
let str = "hello";
let upper = str.toUpperCase();
console.log(upper);  // Output: HELLO

// Convert to lowercase
let text = "WORLD";
let lower = text.toLowerCase();
console.log(lower);  // Output: world

// Capitalize first letter
let word = "javascript";
let firstChar = word.charAt(0).toUpperCase();
let restOfWord = word.slice(1);
let capitalized = firstChar + restOfWord;
console.log(capitalized);  // Output: Javascript
```

5.3 Reverse a String

Reverse the order of characters.

```
// Reverse using loop
let str = "hello";
let reversed = "";

for (let i = str.length - 1; i >= 0; i--) {
    reversed = reversed + str[i];
}

console.log("Reversed:", reversed);  // Output: olleh

// Another method
let text = "world";
let rev = "";
for (let i = 0; i < text.length; i++) {
    rev = text[i] + rev;
}
console.log("Reversed:", rev);  // Output: dlrow
```

5.4 Count Vowels in String

Count a, e, i, o, u in a string.

```
// Count vowels
let str = "Hello World";
let vowelCount = 0;

for (let i = 0; i < str.length; i++) {
    let char = str[i].toLowerCase();
    if (char === 'a' || char === 'e' || char === 'i' ||
        char === 'o' || char === 'u') {
        vowelCount++;
    }
}

console.log("Vowels:", vowelCount);  // Output: 3

// Count consonants
let text = "JavaScript";
let consonants = 0;

for (let i = 0; i < text.length; i++) {
    let ch = text[i].toLowerCase();
    if (ch >= 'a' && ch <= 'z') {
        if (ch !== 'a' && ch !== 'e' && ch !== 'i' &&
            ch !== 'o' && ch !== 'u') {
            consonants++;
        }
    }
}

console.log("Consonants:", consonants);  // Output: 7
```

5.5 Count Words in String

Count words separated by spaces.

```
// Count words (simple method)
let sentence = "Hello World";
let wordCount = 0;
let inWord = false;

for (let i = 0; i < sentence.length; i++) {
    if (sentence[i] !== ' ') {
        if (!inWord) {
            wordCount++;
            inWord = true;
        }
    } else {
        inWord = false;
    }
}

console.log("Words:", wordCount);  // Output: 2

// Count using split
let text = "JavaScript is fun";
let words = text.split(' ');
let count = words.length;
console.log("Word count:", count);  // Output: 3
```

5.6 Compare Strings

Check if two strings are equal.

```
// Compare strings
let str1 = "hello";
let str2 = "hello";
```

```
if (str1 === str2) {
    console.log("Strings are equal");
} else {
    console.log("Strings are not equal");
}

// Case-insensitive comparison
let text1 = "Hello";
let text2 = "hello";
let lower1 = text1.toLowerCase();
let lower2 = text2.toLowerCase();

if (lower1 === lower2) {
    console.log("Equal (ignoring case)");  // This prints
}

// Check if starts with
let word = "JavaScript";
let prefix = "Java";
let startsWith = word.indexOf(prefix) === 0;
console.log("Starts with Java:", startsWith);  // Output: true
```

5.7 Join Strings Together

Concatenate multiple strings.

```
// Concatenate strings
let str1 = "Hello";
let str2 = "World";
let result = str1 + str2;
console.log(result);  // Output: HelloWorld

// With space
let greeting = "Hello";
let name = "World";
let message = greeting + " " + name;
console.log(message);  // Output: Hello World

// Multiple strings
let part1 = "I";
let part2 = " love";
let part3 = " coding";
let sentence = part1 + part2 + part3;
console.log(sentence);  // Output: I love coding

// Using += operator
let text = "Java";
text += "Script";
console.log(text);  // Output: JavaScript
```

6. Simple Loops & Patterns

6.1 Print Line of Stars

Print stars in a row.

```
// Print 5 stars
let n = 5;
let line = "";

for (let i = 0; i < n; i++) {
    line = line + "*";
}

console.log(line);  // Output: *****

// Print 8 stars
let stars = "";
for (let i = 0; i < 8; i++) {
    stars += "*";
}
console.log(stars);  // Output: ********
```

6.2 Print Numbers in Line

Print numbers 1 to n.

```
// Print numbers 1 to 5
let line = "";
for (let i = 1; i <= 5; i++) {
    line = line + i + " ";
}
console.log(line);  // Output: 1 2 3 4 5

// Print in reverse
let rev = "";
for (let i = 5; i >= 1; i--) {
    rev += i + " ";
}
console.log(rev);  // Output: 5 4 3 2 1
```

6.3 Print Square Pattern

Print a square of stars.

```
// Print 4x4 square
let size = 4;

for (let i = 0; i < size; i++) {
    let line = "";
    for (let j = 0; j < size; j++) {
        line += "* ";
    }
    console.log(line);
}

/* Output:
* * * *
* * * *
* * * *
* * * *
*/
```

6.4 Print Triangle Pattern

Print right triangle of stars.

```
// Print right triangle
let height = 4;

for (let i = 1; i <= height; i++) {
    let line = "";
    for (let j = 1; j <= i; j++) {
        line += "* ";
    }
    console.log(line);
}

/* Output:
*
* *
* * *
* * * *
*/

// Number triangle
for (let i = 1; i <= 5; i++) {
    let row = "";
    for (let j = 1; j <= i; j++) {
        row += j + " ";
    }
    console.log(row);
}

/* Output:
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
*/
```

7. Basic Validations

7.1 Check if Year is Leap Year

A year is leap if divisible by 4 (except century years must be divisible by 400).

```
// Check leap year
let year = 2024;
let isLeap = false;

if (year % 4 === 0) {
    if (year % 100 === 0) {
        if (year % 400 === 0) {
            isLeap = true;
        }
    } else {
        isLeap = true;
    }
}

if (isLeap) {
    console.log(year + " is a leap year");
} else {
    console.log(year + " is not a leap year");
}

// Examples:
// 2024 - leap year (divisible by 4)
// 2023 - not leap year
// 2000 - leap year (divisible by 400)
// 1900 - not leap year (divisible by 100 but not 400)
```

7.2 Check if Number in Range

Validate if number is between min and max.

```
// Check if in range
let num = 5;
let min = 1;
let max = 10;

if (num >= min && num <= max) {
    console.log(num + " is in range");
} else {
    console.log(num + " is out of range");
}

// Age validation
let age = 25;

if (age < 0) {
    console.log("Invalid age");
} else if (age < 18) {
    console.log("Minor");
} else if (age <= 65) {
    console.log("Adult");  // This prints
} else {
    console.log("Senior");
}
```

7.3 Check String Content

Validate what a string contains.

```
// Check if contains only digits
let str = "12345";
let onlyDigits = true;
```

```
for (let i = 0; i < str.length; i++) {
    let char = str[i];
    if (char < '0' || char > '9') {
        onlyDigits = false;
        break;
    }
}

if (onlyDigits) {
    console.log("String contains only digits");
}

// Check if contains letters
let text = "Hello";
let hasLetter = false;

for (let i = 0; i < text.length; i++) {
    let ch = text[i].toLowerCase();
    if (ch >= 'a' && ch <= 'z') {
        hasLetter = true;
        break;
    }
}

console.log("Has letters:", hasLetter);  // Output: true
```

7.4 Verify Password Length

Check if password meets length requirement.

```
// Check password length
let password = "mypassword123";
let minLength = 8;

if (password.length >= minLength) {
    console.log("Password length is valid");
} else {
    console.log("Password too short");
}

// Check for uppercase letter
let pwd = "Password123";
let hasUpper = false;

for (let i = 0; i < pwd.length; i++) {
    let char = pwd[i];
    if (char >= 'A' && char <= 'Z') {
        hasUpper = true;
        break;
    }
}

console.log("Has uppercase:", hasUpper);  // Output: true

// Check for digit
let pass = "MyPassword123";
let hasDigit = false;

for (let i = 0; i < pass.length; i++) {
    let ch = pass[i];
    if (ch >= '0' && ch <= '9') {
        hasDigit = true;
        break;
    }
}

console.log("Has digit:", hasDigit);  // Output: true
```

Conclusion

This guide demonstrates fundamental programming concepts using simple line-by-line code without functions. These examples show how to use variables, operators, loops, and conditionals to solve basic problems. Master these fundamentals before moving on to more advanced concepts like functions, objects, and algorithms.

Practice Tip: Try typing out these examples yourself rather than copying and pasting. Modify the values and see how the output changes. This hands-on practice will help you understand how the code works.