C++ Programming Practice Questions

Introduction Level - 10 Programming Exercises

Subject: Computer Programming (C++)

Level: Beginner/Introduction

Total Questions: 10

Instructions: Solve each program using basic C++ structure with `void main()`, `clrscr()`, and `getch()`

Basic Program Structure Template

```cpp
#include <iostream.h>
#include <conio.h>

void main() {
    clrscr(); // Clear screen

    // Your code here

    getch(); // Wait for key press
}
```

Question 1: Display Subject Marks

Problem: Write a program to display the following output using separate cout statements:

- Maths = 90
- Physics = 77
- Chemistry = 69

Hints:

- Use `cout` for output
- Use `\n` or separate cout statements for new lines
- No input required, just display the given marks

Learning Focus: Basic output operations, cout usage

Question 2: Find Larger Number

Problem: Write a program that reads two numbers from the user and displays the larger number.

Hints:

- Declare two integer variables
- Use `cin` to read input from user
- Use `if-else` statement to compare numbers
- Display the result using `cout`

Learning Focus: Input operations, conditional statements, comparison operators

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Question 3: Mathematical Expression

Problem: Write a program to read three values (a, b, c) and calculate the value of x using the formula: **x = a/b - c**

Test Cases:

- Example 1: a=250, b=85, c=25
- Example 2: a=300, b=70, c=70

Hints:

- Use `float` data type for decimal results
- Follow order of operations (division first, then subtraction)
- Read all three values using `cin`
- Display the calculated result

Learning Focus: Arithmetic operations, operator precedence, floating-point calculations

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Question 4: Temperature Conversion

Problem: Write a program to convert temperature from Fahrenheit to Celsius.

Formula: Celsius = (Fahrenheit - 32) × 5/9

Hints:

- Use `float` for temperature values
- Apply the conversion formula correctly
- Test with Fahrenheit = 100 (should give Celsius ≈ 37.78)

Learning Focus: Mathematical formulas, type conversion, arithmetic operations

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Question 5: Circle Area Calculator

Problem: Write a program to calculate and display the area of a circle when radius is given by the user.

Formula: Area = $\pi \times r^2$
Note: Use $\pi = 3.14$

Hints:

- Read radius as float value
- Multiply radius by itself for r^2
- Use 3.14 as the value of π
- Display the calculated area

Learning Focus: Mathematical constants, multiplication, geometric calculations

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Question 6: Simple Interest Calculator

Problem: Write a program to calculate Simple Interest using the given principal amount, rate of interest, and time period.

Formula: Simple Interest = (Principal × Rate × Time) / 100

Hints:

- Read three values: principal, rate, time
- Use the given formula
- Display the calculated interest
- Test with: Principal=1000, Rate=5%, Time=2 years

Learning Focus: Financial calculations, formula implementation

Question 7: Even or Odd Checker

Problem: Write a program that reads a number and determines whether it's even or odd.

Hints:

- Use modulus operator (%) to find remainder
- If number % 2 equals 0, it's even
- Otherwise, it's odd
- Use if-else for decision making

Learning Focus: Modulus operator, conditional logic, remainder calculations

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Question 8: Sum Calculator

Problem: Write a program to read three numbers and calculate their sum.

Hints:

- Declare variables for three numbers and sum
- Read all three numbers using cin
- Add them using + operator
- Display the total sum

Learning Focus: Basic arithmetic, addition operator, multiple inputs

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Question 9: Square Calculator

Problem: Write a program to read a number and display its square.

Hints:

- Read one integer number
- Multiply the number by itself
- Display the result
- Example: If input is 8, output should be 64

Learning Focus: Multiplication, basic arithmetic operations

Question 10: Reverse Temperature Conversion

Problem: Write a program to convert temperature from Celsius to Fahrenheit.

Formula: Fahrenheit = (Celsius × 9/5) + 32

Hints:

- This is reverse of Question 4
- Use float for temperature values
- Apply the conversion formula
- Test with Celsius = 25 (should give Fahrenheit = 77)

Learning Focus: Reverse calculations, formula manipulation

General Programming Tips

Before You Start:

1. **Plan your solution** - Think about what inputs you need and what output to produce
2. **Identify variables** - What data types do you need? (int, float, char)
3. **Write step by step** - Break down the problem into smaller parts

While Programming:

1. **Include necessary headers** - Always include `iostream.h` and `conio.h`
2. **Clear screen first** - Use `clrscr()` at the beginning
3. **Add comments** - Write simple one-line comments explaining your logic
4. **Test your logic** - Trace through your program with sample values

Common Mistakes to Avoid:

- Forgetting semicolons (;) at the end of statements
- Not declaring variables before using them
- Using wrong data types (int vs float)
- Forgetting to include getch() at the end

Sharing Instructions

For Your Friends:

- Share this document as a study guide
- Work together to solve the problems
- Compare your solutions and discuss different approaches
- Help each other understand the logic

For Your Juniors:

- This document serves as a complete practice set for C++ beginners
- Each question builds upon previous concepts
- Start with Question 1 and progress sequentially
- Don't skip the hints - they provide important guidance
- Practice these problems multiple times to build confidence

Study Tips:

1. **Solve all questions yourself first** before looking at any solutions
2. **Write programs on paper** before typing on computer
3. **Test with different input values** to verify your logic
4. **Explain your solution** to someone else - it helps you understand better
5. **Keep practicing** - Programming skills improve with regular practice

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Remember: The goal is to understand the logic and problem-solving approach, not just to get the correct output. Focus on learning the concepts behind each program.

Good Luck with your C++ Programming Journey!