**SELF-REVIEW EXERCISES**

**2.1 Fill in the blanks**

a) A(n) **{** begins the body of every method, and a(n) **}** ends the body of every method.

b) You can use the **if** statement to make decisions.

c) **//** begins an end-of-line comment.

d) **Space**, **tab**, and **newline** are called white space.

e) **Keywords** are reserved for use by Java.

f) Java applications begin execution at method **main**.

g) Methods **System.out.println**, **System.out.print**, and **System.out.printf** display information in a command window.

**2.2 True or False**

a) **False** – Comments cause the computer to print the text after the // on the screen when the program executes.

b) **True** – All variables must be given a type when they’re declared.

c) **False** – Java considers the variables number and NuMbEr to be identical.

d) **False** – The remainder operator % can be used only with integer operands.

e) **False** – The aritmetic operators \*, /, %,+ and – all have the same level of precedence.

**2.3 Java Statements**

a) int c, thisIsAVariable, q76354, number;

b) System.out.print("Enter an integer: ");

c) int value = input.nextInt();

d) System.out.println("This is a Java program");

e) System.out.printf("This is a%nJava program%n");

f) if (number != 7) System.out.println("The variable number is not equal to 7");

**2.4 Identify and Correct Errors**

a) **Incorrect:** if (c < 7); System.out.println("c is less than 7");

**Correction:** Remove the semicolon after if:

if (c < 7) System.out.println("c is less than 7");

b) **Incorrect:** if (c => 7) System.out.println("c is equal to or greater than 7");

Correction: Change => to >=:

if (c >= 7) System.out.println("c is equal to or greater than 7");

**2.5 Java Statements**

a) // This program calculates the product of three integers

b) Scanner input = new Scanner(System.in);

c) int x, y, z, result;

d) System.out.print("Enter the first integer: ");

e) x = input.nextInt();

f) System.out.print("Enter the second integer: ");

g) y = input.nextInt();

h) System.out.print("Enter the third integer: ");

i) z = input.nextInt();

j) result = x \* y \* z;

k) System.out.printf("Product is %d%n", result);

**2.6 Complete Program**

import java.util.Scanner;

public class ProductCalculator {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.print("Enter the first integer: ");

int x = input.nextInt();

System.out.print("Enter the second integer: ");

int y = input.nextInt();

System.out.print("Enter the third integer: ");

int z = input.nextInt();

int result = x \* y \* z;

System.out.printf("Product is %d%n", result);

}

}

**2.7 Fill in the blanks**

a) **Comments** are used to document a program and improve its readability.

b) A decision can be made in a Java program with a(n) **if statement**.

c) Calculations are normally performed by **arithmetic** statements.

d) The arithmetic operators with the same precedence as multiplication are **division (/)** and **modulus (%)**.

e) When parentheses in an arithmetic expression are nested, the **innermost** set of parentheses is evaluated first.

f) A location in the computer’s memory that may contain different values at various times throughout the execution of a program is called a(n) **variable**.

**2.8 Java Statements**

a) System.out.print("Enter an integer: ");

b) a = b \* c;

c) // This program performs a sample payroll calculation

**2.9 True or False**

a) **False** – Operators are evaluated based on precedence, not always from left to right.

b) **True** – The listed variable names are valid.

c) **False** – Operator precedence affects evaluation order.

d) **True** – Variable names cannot start with a number.

**2.10 Output of Statements**

java

Copy code

x = 2;

y = 3;

System.out.printf("x = %d%n", x); // Output: x = 2

System.out.printf("Value of %d + %d is %d%n", x, x, (x + x)); // Output: Value of 2 + 2 is 4

System.out.printf("x ="); // Output: x =

System.out.printf("%d = %d%n", (x + y), (y + x)); // Output: 5 = 5

**2.11 Modified Variables**

Modified variables are found in:

a) p = i + j + k + 7;

d) value = input.nextInt();

**2.12 Correct Java Statements** for y = ax³ + 7

Correct options:

a) y = a \* x \* x \* x + 7;

d) y = (a \* x) \* x \* x + 7;

e) y = a \* (x \* x \* x) + 7;

**2.13 Order of Evaluation**

a) x = 7 + 3 \* 6 / 2 - 1; → x = 7 + 18 / 2 - 1; → x = 7 + 9 - 1; → x = 15

b) x = 2 % 2 + 2 \* 2 - 2 / 2; → x = 0 + 4 - 1; → x = 3

c) x = (3 \* 9 \* (3 + (9 \* 3 / 3))); → x = 3 \* 9 \* (3 + 9); → x = 3 \* 9 \* 12; → x = 324

**2.14 Displaying Numbers**

a) System.out.println("1 2 3 4");

b)

java

Copy code

System.out.print("1 ");

System.out.print("2 ");

System.out.print("3 ");

System.out.print("4 ");

c) System.out.printf("%d %d %d %d%n", 1, 2, 3, 4);

**2.15 Arithmetic Program**

java

Copy code

Scanner input = new Scanner(System.in);

int a = input.nextInt();

int b = input.nextInt();

System.out.printf("Sum: %d%nProduct: %d%nDifference: %d%nQuotient: %d%n", (a+b), (a\*b), (a-b), (a/b));