# Chapter 2 Answers – Introduction to Java Applications

2.1 Fill in the blanks  
a) A(n) left brace { begins the body of every method, and a(n) right brace } ends the body of every method.  
b) You can use the if statement to make decisions.  
c) // begins an end-of-line comment.  
d) Blank, 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.print, System.out.println, and System.out.printf display information in a command window.  
  
2.2 True or False  
a) False — Comments are ignored by the computer; they’re for humans only.  
b) True.  
c) False — Java is case-sensitive; number and NuMbEr are different.  
d) False — The remainder operator (%) can also be used with floating-point operands.  
e) False — \*, /, and % have higher precedence than + and -.  
  
2.3 Write 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("%s%n%s%n", "This is a Java", "program");  
f) if (number != 7) System.out.println("The variable number is not equal to 7");  
  
2.4 Identify and correct errors  
a) if (c < 7) System.out.println("c is less than 7");  
b) if (c >= 7) System.out.println("c is equal to or greater than 7");  
  
2.5 Steps to build the product program  
// Program to calculate the product of three integers  
Scanner input = new Scanner(System.in);  
int x, y, z, result;  
System.out.print("Enter first integer: ");  
x = input.nextInt();  
System.out.print("Enter second integer: ");  
y = input.nextInt();  
System.out.print("Enter third integer: ");  
z = input.nextInt();  
result = x \* y \* z;  
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);  
 int x, y, z, result;  
 System.out.print("Enter first integer: ");  
 x = input.nextInt();  
 System.out.print("Enter second integer: ");  
 y = input.nextInt();  
 System.out.print("Enter third integer: ");  
 z = input.nextInt();  
 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 readability.  
b) A decision can be made with an if statement.  
c) Calculations are normally performed by assignment statements.  
d) The arithmetic operators with the same precedence as multiplication are division and remainder.  
e) When parentheses are nested, the innermost set is evaluated first.  
f) A variable is a memory location that may contain different values during program execution.  
  
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 by precedence, not always left to right.  
b) True — All listed names are valid identifiers.  
c) False — Multiplication and division are evaluated before addition/subtraction.  
d) True — All listed are invalid variable names (cannot start with digits).

2.10 Output for x = 2, y = 3  
a) x = 2  
b) Value of 2 + 2 is 4  
c) x =  
d) 5 = 5  
  
2.11 Modified variables  
a) Yes (p is assigned a new value).  
b) No.  
c) No.  
d) Yes (value is assigned new input).  
  
2.12 Correct statements for y = a\*x³ + 7  
a) y = a \* x \* x \* x + 7;  
d) y = (a \* x) \* x \* x + 7;  
e) y = a \* (x \* x \* x) + 7;  
  
2.13 Operator order and results  
a) x = 7 + 3 \* 6 / 2 - 1; → 15  
b) x = 2 % 2 + 2 \* 2 - 2 / 2; → 3  
c) x = (3 \* 9 \* (3 + (9 \* 3 / (3)))); → 324  
  
2.14 Display 1–4  
a) System.out.println("1 2 3 4");  
b) System.out.print("1 "); System.out.print("2 "); System.out.print("3 "); System.out.print("4\n");  
c) System.out.printf("%d %d %d %d%n", 1, 2, 3, 4);  
  
2.15 Arithmetic Program  
import java.util.Scanner;  
public class Arithmetic {  
 public static void main(String[] args) {  
 Scanner input = new Scanner(System.in);  
 int num1, num2;  
 System.out.print("Enter first integer: ");  
 num1 = input.nextInt();  
 System.out.print("Enter second integer: ");  
 num2 = input.nextInt();  
 System.out.printf("Sum: %d%nProduct: %d%nDifference: %d%nQuotient: %d%n",  
 num1 + num2, num1 \* num2, num1 - num2, num1 / num2);  
 }  
}  
  
2.16 Comparing Integers  
import java.util.Scanner;  
public class Compare {  
 public static void main(String[] args) {  
 Scanner input = new Scanner(System.in);  
 int num1, num2;  
 System.out.print("Enter first integer: ");  
 num1 = input.nextInt();  
 System.out.print("Enter second integer: ");  
 num2 = input.nextInt();  
 if (num1 > num2)  
 System.out.printf("%d is larger%n", num1);  
 else if (num2 > num1)  
 System.out.printf("%d is larger%n", num2);  
 else  
 System.out.println("These numbers are equal");  
 }  
}  
  
2.17 Sum, Average, Product, Smallest, Largest  
import java.util.Scanner;  
public class Numbers {  
 public static void main(String[] args) {  
 Scanner input = new Scanner(System.in);  
 int x, y, z;  
 System.out.print("Enter first integer: ");  
 x = input.nextInt();  
 System.out.print("Enter second integer: ");  
 y = input.nextInt();  
 System.out.print("Enter third integer: ");  
 z = input.nextInt();  
 int sum = x + y + z;  
 int average = sum / 3;  
 int product = x \* y \* z;  
 int smallest = Math.min(x, Math.min(y, z));  
 int largest = Math.max(x, Math.max(y, z));  
 System.out.printf("Sum: %d%nAverage: %d%nProduct: %d%nSmallest: %d%nLargest: %d%n",  
 sum, average, product, smallest, largest);  
 }  
}