**Chapter 2 Exercises**

**2.7** Fill in the blanks in each of the following statements:

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 **assignment** statements.

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

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 Write Java statements that accomplish each of the following tasks:

a) Display the message "Enter an integer: ", leaving the cursor on the same line.

**Answer:**

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

b) Assign the product of variables b and c to variable a.

**Answer:**

**a = b \* c;**

c) Use a comment to state that a program performs a sample payroll calculation.

**Answer:**

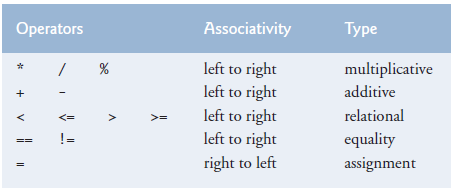
// This program performs a sample payroll calculation.

2.9 State whether each of the following is true or false. If false, explain why.

a) Java operators are evaluated from left to right.

**Answer: False**

**Some operators (e.g., assignment, =) evaluate from right to left. Refer the below figure**



b) The following are all valid variable names: \_under\_bar\_, m928134, t5, j7, her\_sales$,

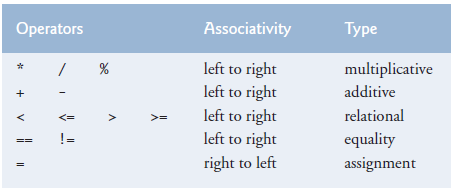
his\_$account\_total, a, b$, c, z and z2.

**Answer: True**

c) A valid Java arithmetic expression with no parentheses is evaluated from left to right.

**Answer: False**

**The Java arithmetic expression is evaluated according to operator precedence.**



d) The following are all invalid variable names: 3g, 87, 67h2, h22 and 2h.

**Answer: False**

**Identifier h22 is a valid variable name.**

2.10 Assuming that x = 2 and y = 3, what does each of the following statements display?

a) System.out.printf( "x = %d\n", x );

**Answer: x = 2**

b) System.out.printf( "Value of %d + %d is %d\n", x, x, ( x + x ) );

**Answer: Value of 2 + 2 is 4**

c) System.out.printf( "x =" );

**Answer: x =**

d) System.out.printf( "%d = %d\n", ( x + y ), ( y + x ) );

**Answer: 5 = 5**

2.11 Which of the following Java statements contain variables whose values are modified?

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

b) System.out.println( "variables whose values are modified" );

c) System.out.println( "a = 5" );

d) value = input.nextInt();

**Answer: a** and **d**

2.12 Given that y = ax3 + 7, which of the following are correct Java statements for this equation?

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

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

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

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

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

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

**Answer: a, d and e**

2.13 State the order of evaluation of the operators in each of the following Java statements, and show the value of x after each statement is performed:

a) x = 7 + 3 \* 6 / 2 - 1;

**Answer: \*, /, +, - ;**

**Step1: x = 7 + 18 /2 -1**

**Step2: x = 7 + 9 -1**

**Step3: x = 16 -1**

**Value of x is 15**

b) x = 2 % 2 + 2 \* 2 - 2 / 2;

**Answer: %, \*, /, +, - ;**

**Step1: x = 0 + 2 \*2 -2/2**

**Step2: x = 0 + 4 - 2/2**

**Step3: x = 0 + 4 - 1**

**Step4: x = 4 – 1**

**Value of x is 3**

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

**Answer: x = ( 3 \* 9 \* ( 3 + ( 9 \* 3 / ( 3 ) ) ) )**

**4 5 3 1 2**

**Step1: x = ( 3 \* 9 \* ( 3 + ( 27 / (3) ) ) )**

**Step2: x = ( 3 \* 9 \* ( 3 + 9 ) )**

**Step3: x = ( 3 \* 9 \* 12 )**

**Step4: x = ( 27 \* 12 )**

**Step5: x = 324**

**Value of x is 324**

2.14 Write an application that displays the numbers 1 to 4 on the same line, with each pair of adjacent numbers separated by one space. Use the following techniques:

a) Use one System.out.println statement.

b) Use four System.out.print statements.

c) Use one System.out.printf statement.

**Answer: Attached DisplayNumbersOneToFour.java file below**

**public** **class** DisplayNumbersOneToFour {

**public** **static** **void** main(String[] args) {

System.***out***.println ("Displays the numbers 1 to 4 using \n"

+ "\t a) one System.out.println statement \n"

+ "\t b) four System.out.print statements \n"

+ "\t c) one System.out.printf statement \n");

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

System.***out***.print ("1 ");

System.***out***.print ("2 ");

System.***out***.print ("3 ");

System.***out***.print ("4 \n");

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

}

}



2.25 (Odd or Even)Write an application that reads an integer and determines and prints whether it’s odd or even. [Hint: Use the remainder operator. An even number is a multiple of 2. Any multiple of 2 leaves a remainder of 0 when divided by 2.]

**Answer:**

**import** java.util.Scanner;

**public** **class** EvenOrOddNumber {

**public** **static** **void** main(String[] args) {

**int** num;

Scanner number = **new** Scanner(System.***in***);

System.***out***.print("Enter any Number: ");

num = number.nextInt();

**if** (num % 2 == 0) {

System.***out***.printf("\nThe Number %d is Even Number.\n", num);

} **else** {

System.***out***.printf("\nThe Number %d is Odd Number.\n", num);

}

} // end of main method

} // end of class

