**Algorithm Workbench**

**1.** Show how the double variables temp, weight, and age can be

declared in one statement.

**Ans:**

public class Main {  
 public static void main(String[] args) {

double temp, weight, age;

}

}

**2.** Show how the int variables months, days, and years may be

declared in one statement, with months initialized to 2 and years initialized to 3.

**Ans:**

public class Main {  
 public static void main(String[] args) {

int months = 2, days, years = 3;

}

}

**3.** Write assignment statements that perform the following operations

with the variables a, b, and c.

● Adds 2 to a and stores the result in b

● Multiplies b times 4 and stores the result in a

● Divides a by 3.14 and stores the result in b

● Subtracts 8 from b and stores the result in a

● Stores the character ‘K’ in c

● Stores the Unicode code for ‘B’ in c

**Ans:**

public class Main {  
 public static void main(String[] args) {

int b = 0;  
 int a = 0;  
 char c;  
  
 b = a + 2;  
 a = b \* 4;  
 b = (int) (a / 3.14);  
 a = b - 8;  
 c = 'K';  
 c = (char) Character.codePointAt(new char[]{'B'}, 0);

}

}

**4.** Assume the variables result, w, x, y, and z are all integers, and that

w = 5, x = 4, y = 8, and z = 2. What value will be stored in result in

each of the following statements?

a.result = x + y;

b.result = z \* 2;

c. result = y / x;

d.result = y − z;

e. result = w % 2;

**Ans:**

a.12

b. 4

c. 2

d. 6

e. 1

**5.** How would each of the following numbers be represented in E

notation?

a. 3.287 × 106

b.−9.7865 × 1012

c. 7.65491 × 10−3

**Ans:**

1. 3.287e6
2. 9.7865e12
3. 7.654916 - 3

**6.** Modify the following program so it prints two blank lines between

each line of text.

public class {

public static void main(String[] args) {

System.out.print("Hearing in the distance"); System.out.print("Twomandolins like creatures in the"); System.out.print("dark");

System.out.print("Creating the agony of ecstasy.");

System.out.println(" - George Barker");

}

}

**Ans:**

public class {

public static void main(String[] args) {

System.out.print("Hearing in the distance");  
 System.out.println("");  
 System.out.println("");  
 System.out.print("Two mandolins like creatures in the");  
 System.out.println("");  
 System.out.println("");  
 System.out.print("dark");  
 System.out.println("");  
 System.out.println("");  
 System.out.print("Creating the agony of ecstasy.");  
 System.out.println("");  
 System.out.println("");  
 System.out.println(" - George Barker");

}

}

**7.** What will the following code output?

int apples = 0, bananas = 2, pears = 10; apples += 10;

bananas \*= 10;

pears /= 10;

System.out.println(apples + " " + bananas + " " + pears);

**Ans:**

10 20 1

**8.** What will the following code output?double d = 12.9;

int i = (int)d;

System.out.println(i);

Ans:

12

**9.** What will the following code output?

String message = “Have a great day!”;

System.out.println(message.charAt(5));

**Ans:**

a

**10.** What will the following code output?

String message = "Have a great day!";

System.out.println(message.toUpperCase());

System.out.println(message);

**Ans:**

HAVE A GREAT DAY!

Have a great day!

**11.** Convert the following pseudocode to Java code. Be sure to

declare the appropriate variables.

Store 20 in the speed variable.

Store 10 in the time variable.

Multiply speed by time and store the result in the distance variable.

Display the contents of the distance variable.

**Ans:**

public class {

public static void main(String[] args) {

int speed = 20;  
 int time = 10;  
  
 int distance = speed \* time;  
  
 System.out.println("Distance = " + distance);

}

}

12. Convert the following pseudocode to Java code. Be sure to

declare the appropriate variables.

Store 172.5 in the force variable.

Store 27.5 in the area variable.

Divide area by force and store the result in the pressure variable.

Display the contents of the pressure variable.

**Ans:**

public class {

public static void main(String[] args) {

double force = 172.5;  
 double area = 27.5;  
  
 double pressure = area / force;  
  
 System.out.println("Pressure =" + pressure);

}

}

**13.** Write the code to set up all the necessary objects for reading

keyboard input. Then write code that asks the user to enter his or

her desired annual income. Store the input in a double variable.

Ans:

import java.util.Scanner;

public class {

public static void main(String[] args) {

Scanner scn = new Scanner(System.in);  
  
 System.out.println("Enter your anual income :");  
  
 int desiredAnualIncome = scn.nextInt();  
  
 System.out.println("Desired anual income : " + desiredAnualIncome);  
  
 double anualIncome1 = desiredAnualIncome;

}

}

14. Write the code to display a dialog box that asks the user to

enter his or her desired annual income. Store the input in a double

variable.

**Ans:**

import javax.swing.JOptionPane;

public class {

public static void main(String[] args) {

System.out.println("Check your screen for the dialogue box");  
  
 String userInput = JOptionPane.showInputDialog("Enter your desired annual income:");  
  
 double annualIncome2 = Double.parseDouble(userInput);  
  
 JOptionPane.showMessageDialog(null, "Your desired annual income is: $" + annualIncome2);

}

}

**15.** A program has a float variable named total and a double

variable named number. Write a statement that assigns number to

total without causing an error when compiled.

**Ans:**

public class {

public static void main(String[] args) {

float total;  
 double number = 3.4;  
  
 total = (float) number;

}

}