**Sequential-Practice Exercises**

**Evaluate the Following Expressions:**

**Solutions:**

A = 26

B = -1

C = False

D = True

**Pseudocodes & Flowcharts:**

Problem #1

* Write a flowchart and a pseudocode to convert the length in feet to centimeter.

Direction:

* *Input the length in feet (use variable LFT)*
* *Calculate the length in cm (LCM) by multiplying LFT with 30*
* *Print LCM*

Solution:

Pseudocode:

Variables used:

LFT, LCM are numeric.

Begin:

Input:  
 Accept LFT

Process:

Output:

Display “Feet to centimeters=”, LCM

End.

Flowchart:

**START**

Input LFT

**END**

LCM = LFT \* 30.48

Output “Feet to centimeters=”, LCM

Problem #3

Create a flowchart and a pseudocode that would input numeric values to A, B, C, D and exchange their values such that A goes to B, B goes to C, C goes to D, and D goes to A.

Hint: you may use a temp variable to swap values of A,B,C and D

Pseudocode:

Variables used:

a, b, c, d, temp are numeric.

Begin:

Input:

Accept a

Accept b

Accept c

Accept d

Process:

Temp = b

b = a

a = d

d = c

c = temp

Output:

Display a, b, c, d

End.

Flowchart:

**START**

Input a , b, c, d

**END**

temp = b

b = a

a = d

d = c

c = temp

Output a , b, c, d

Problem #4

Write a flowchart and a pseudocode to calculate the circumference of a circle .enter the value of radius. The equation for determining the circumference, circum, of a circle is circum = 2 pi r, where r is the radius and pi equals 3.1416.

Pseudocode:

Variables used:

circum, r, pi are numeric.

Begin:

Input:

Accept r

Process:

circum = 2 \* pi \* r

Output:

Display”Circumference =”, circum

End.

Flowchart:

**START**

Input r

**END**

circum = 2 \* pi \* r

Output ”Circumference =”, circum

Problem #5

Ten young men agreed to purchase a gift worth Php 10,000.00 for their idol: LA Lopez. In addition, they agreed to continue with their plan even if at least one of them drop out. Create a flowchart a pseudocode that would input the number of men who dropped out (assume 0 to 9 only) and output how much more will each have to contribute toward the purchase of the gift.

Pseudocode:

Variables used:

droppedOut, addcon, giftWorth are numeric

Begin:

Input:

Accept droppedOut

Process:

addCon = (1000 \* droppedOut) / (10 – droppedOut)

Output:

Display “Additional contribution of each member:”, addcon

End.

Flowchart:

**START**

Input droppedOut

**END**

addCon = (1000 \* droppedOut) / (10 – droppedOut)

Output “Additional contribution of each member:”, addcon

Problem #6

Create a flowchart and a pseudocode that would input an integer number and then output its one’s digit or the right most digit.

Pseudocode:

Variables used:

num, outNum are numeric.

Begin:

Input:

Accept num

Process:

outNum = num % 10

Output:

Display outNum

End.

Flowchart:

**START**

Input num

**END**

outNum = num % 10

Output outNum

Problem #7

* Design an algorithm to find the perimeter and area of a rectangle
* The perimeter and area of the rectangle are given by the following formulas:

Pseudocode:

Variables used:

len, wid are numeric

Begin:

Input:

Accept len

Accept wid

Process:

perim = 2 \* (len + wid)

area = len \* wid

Output:

Display “Perimeter =”, perim

Display “Area =”, area

End.

Flowchart:

**START**

Input len, wid

**END**

perim = 2 \* (len + wid)

area = len \* wid

Output “Perimeter =”, perim

“Area=”, area

Problem #8

Input a temperature in Celsius and output the corresponding temperature in Fahrenheit. The formula is as follows:

Pseudocode:

Variables used:

cel, far are numeric

Begin:

Input:

Accept cel

Process:

far = 9/5 \* (cel) + 32

Output:

Display “Fahrenheit =”, far

End.

Flowchart:

**START**

Input cel

**END**

far = 9/5 \* (cel) + 32

Output “Fahrenheit =”, far

Problem #9

Problem #9

Pepperoni++ Pizza House charges 10% service charge and 5% sales tax on the gross bill of the customer. Create a flowchart and a pseudocode that would input the gross bill of the customer and the amount given by the customer to the waiter. It must output the customer’s total bill and change (if there’s any).

Pseudocode:

Variables used:

gbill, amountGiven, totalBill, change are numeric

Begin:

Input:

Accept gbill

Accept amountGiven

Process:

totalBill = gbill + (gbill \* 0.10) + (gbill \* 0.05)

change = amountGiven – totalBill

Output:

Display “Total Bill:”, totalBill

Display “Change:”, change

End.

Flowchart:

**START**

Input gbill, amountGiven

**END**

totalBill = gbill + (gbill \* 0.10) + (gbill \* 0.05)

change = amountGiven - totalBill

Output “Total Bill:”, totalBill “Change:”, change