**Assignment 1.**

**Example 2**

**Defining Table**

|  |  |  |
| --- | --- | --- |
| **Input** | **Processing** | **Output** |
| Radius | For a radius:  Compute diameter D = 2r  Compute circumference C= 2πr  Compute the area A=πr2 | * Diameter of a circle * Circumference of a circle * Area of the circle |

**Review questions**

Q1. Your company needs a program to compute the amount to charge customers for mowing their lawns for an entire season. An employee will type in the total area of the customer’s lawn in square feet. Your company charges 10 cents per square foot to mow a lawn one time and will mow each lawn once a week for 15 weeks.

|  |  |  |
| --- | --- | --- |
| **Input** | **Processing** | **Output** |
| A list of square feet to mow lawn  -Area in sqft | For each area,  - compute charge per area sq. ft.  - multiply area by 10cent  - compute total charge by multiply 15 weeks | Total amount of charge for mowing |

**Algorithm Lebel**

1. Get area square feet receive input
2. Compute charge per area square feet arithmetic perform
3. Multiply area by 10 cent arithmetic perform
4. Compute charge per area square feet by multiply 15 weeks arithmetic perform
5. Compute amount of charge for mowing display output

Q2. You have been asked to write a computer program that will output an employee’s after-tax pay. Your program will read from the keyboard the number of regular hours and overtime hours that the employee worked and the employee’s regular hourly wage. The employee is paid a bonus of 1.5 times regular pay for each overtime hour worked. Tax is 15% of the employee’s gross pay.

|  |  |  |
| --- | --- | --- |
| **Input** | **Processing** | **Output** |
| Regular hour  Over time hour  Regular wage | -Compute regular hours wage  -Compute over time wage by multiply 1.5  -Compute tax by multiply 15%  -Compute after tax | After tax pay |

**Algorithm Lebel**

1. Regular hour //receive input
2. Overtime hour // receive input
3. Regular wage // receive input
4. Compute number of regular hour wage // perform arithmetic
5. Compute overtime hour // perform arithmetic
6. Multiply regular hour \* 1.5 // perform arithmetic
7. Compute gross pay = regular wage + overtime wage // perform arithmetic
8. Compute tax = 0.15 \* gross pay // perform arithmetic
9. Compute after tax = gross pay - compute tax // display output

Q3. Which of the following are control structures? (Mark all that apply.)

a. input

b. computation

c. sequence

d. selection

e. repetitio

f. Try, catch, and throw

g. storage

h. output