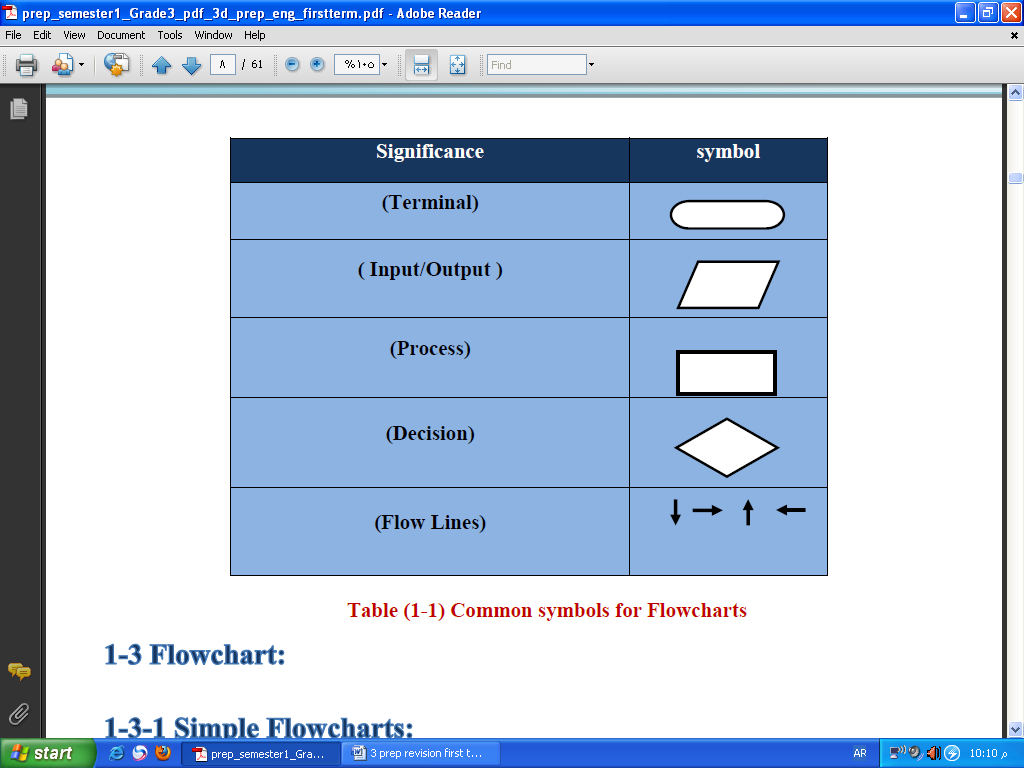
**Chapter 1: Problem Solving**

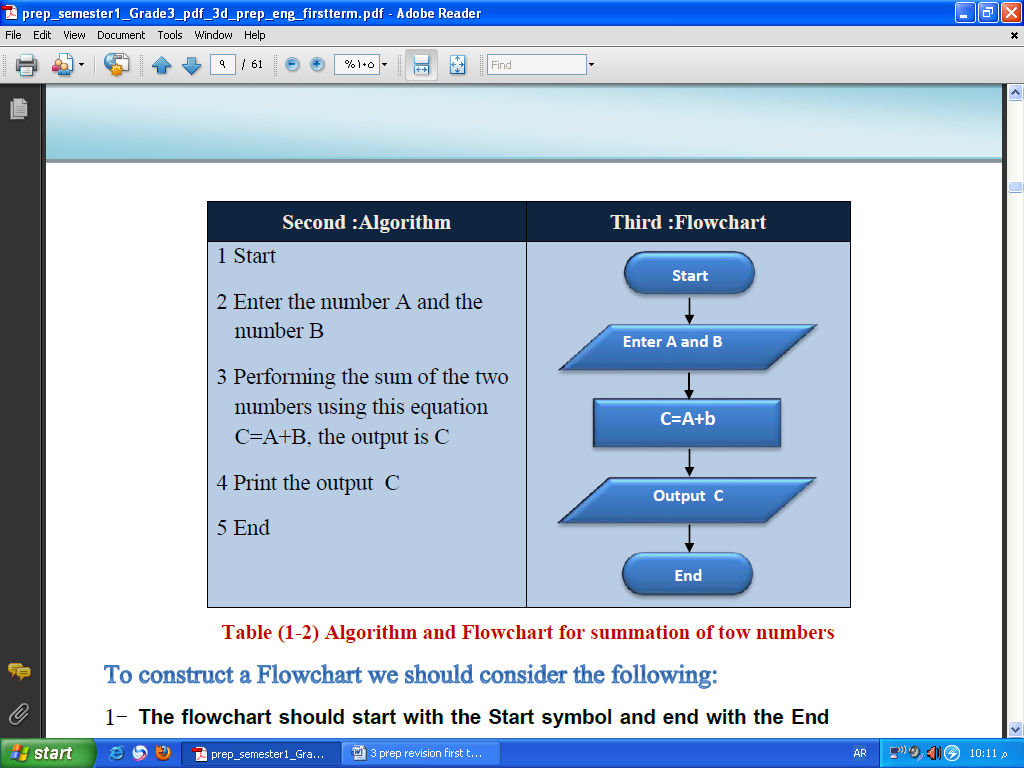
**1- Draw flowchart to calculate the sum of two numbers entered by the user and display the result**

**First: Define the problem**

**Output:** The sum of two numbers

**Input:** The first number is “A “and the second number is “B”

**Processing (Solution):** C =A+B where the result is C



**2-** **Draw the flowchart to solve a first degree equation Y=3x+2**

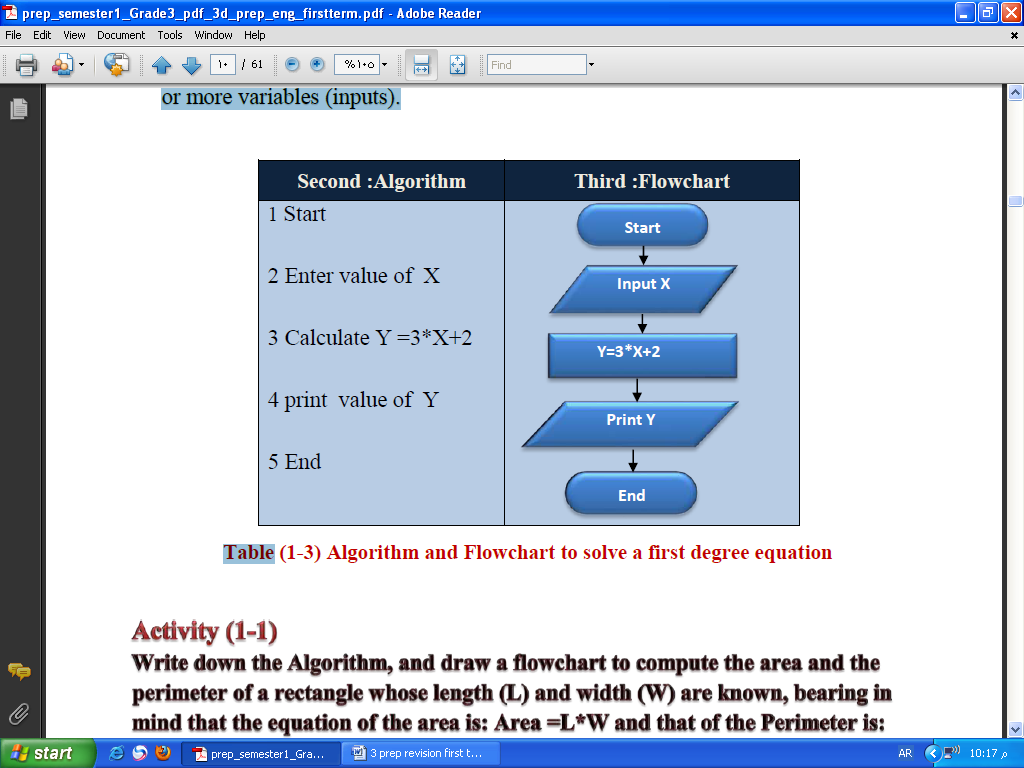
**First: Define the problem**

**Output: The value of “Y”.**

**Input: X**.

**Processing (Solution): Compute the value of “Y” from the equation Y=3x+2.**

* The left hand side (LHS) of any equation should contain only one variable; the value of this variable will be the (output) or the solution of the equation.
* The right hand side (RHS) of the equation may contain abstracted values or arithmetic expressions that have one or more variables (inputs).



**3-**Write down the Algorithm, and draw aflowchart to compute area and the perimeter of a rectangle whose length (L) and width (W) are known, bearing in mind that the equation of the area is : Area=L\*W and that of the perimeter is : perimeter =2(L\*W)

**First: Define the problem**

**Output: Area and perimeter of rectangle**

**Input: length (L) , width (W)**

**Solution** : **Area=L\*W perimeter =2(L\*W)**

|  |  |
| --- | --- |
| **Second :Algorithm** | **Third :Flowchart** |
| 1. start 2. enter value of R 3. processing Area=L\*W   perimeter=2(L\*W)   1. directed output Area-Perimeter 2. end | area.jpg |

**4-**Write down the Algorithm, and draw a flowchart to calculate the area of a circle whose radius “R” is known , bearing in mind that the equation of the area of circle is : Area=3.14\*R\*R.

**First: Define the problem**

**Output: Area of circle**

**Input: value of radius**

**Solution** : **Area=3.14\*R\*R**

|  |  |
| --- | --- |
| **Algorithm** | **Flowchart** |
| 1. start 2. enter value of R 3. processing Area=3.14\*R\*R 4. print result Area 5. end | **ch.jpg** |

**5- Write down the Algorithm, and draw a flowchart to calculate the number of years, bearing in mind that the number of months is known.**

First: Define the problem

Output: number of years Y

Input: number of months M

Solution : Y=M/12

|  |  |
| --- | --- |
| Algorithm | flowchart |
| 1. start 2. enter value of Y 3. processing Y=M/12 4. print result Y 5. end | **years.jpg** |

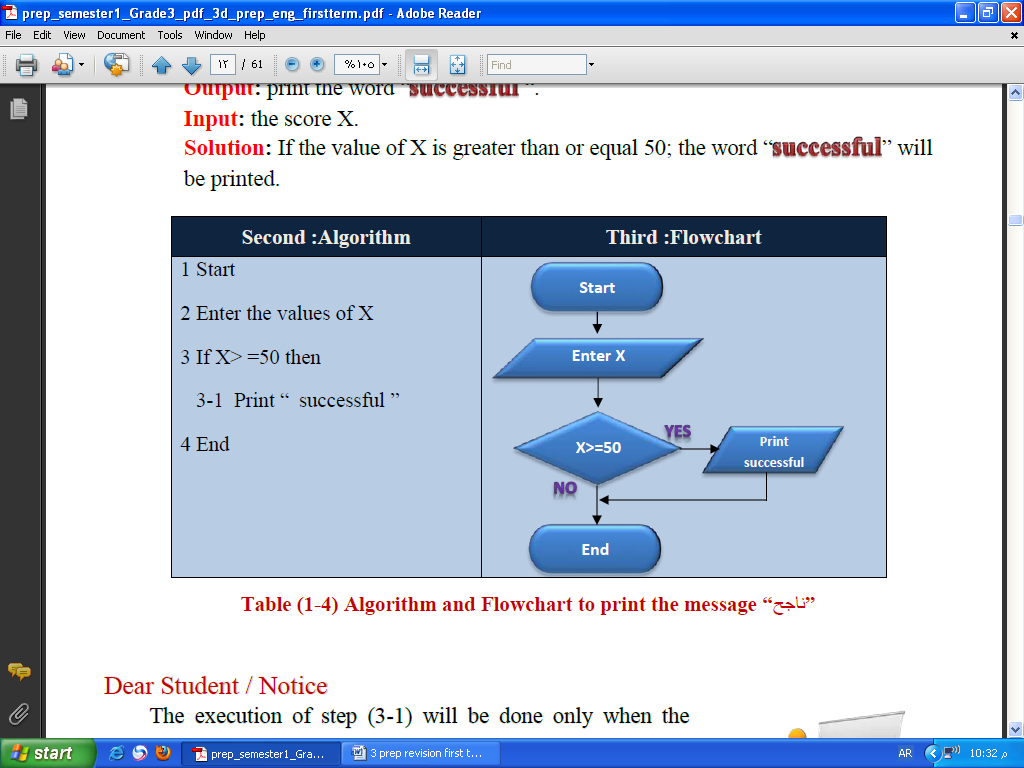
**5-Draw the flowchart to print the word “successful” in the case of the degree input is greater than or equal to 50.**

First: Define the problem

Output: print the word “ “.

Input: the score X.

Solution: If the value of X is greater than or equal 50; the word “successful” will be printed.



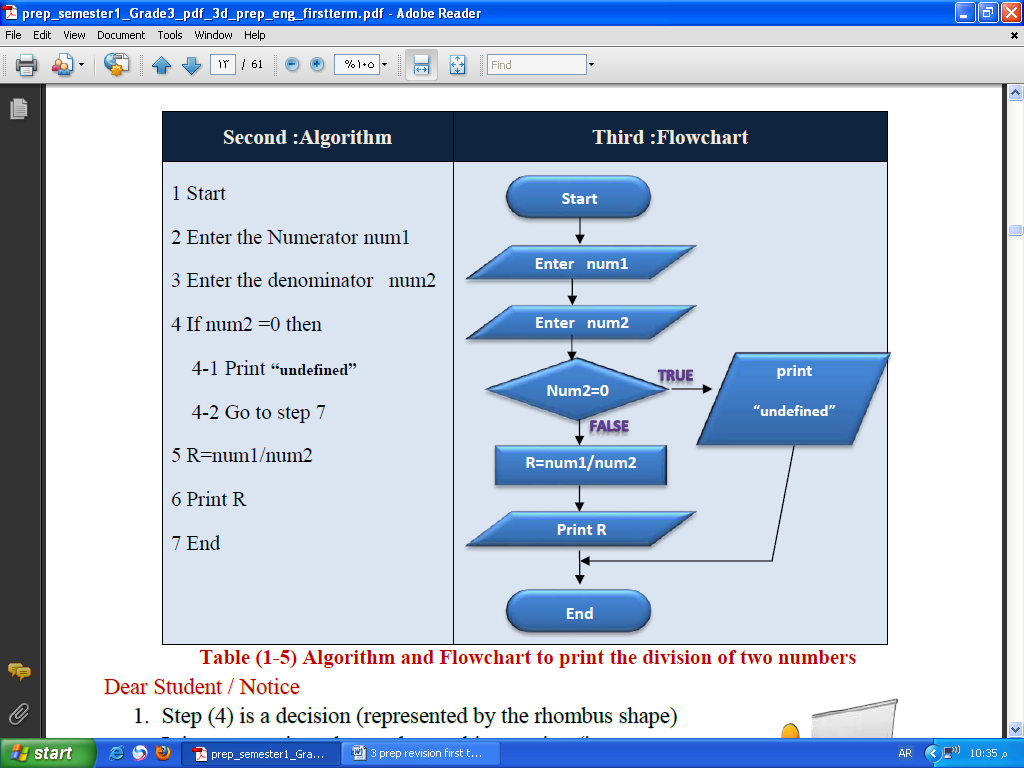
**6: Draw the flowchart for a program that will calculate the division of two numbers. If the divisor equals (zero), the message displays “undefined”.**

First: Define the problem

Output: print the result of dividing two numbers “R” or print the word “undefined"

Input: Numerator is “num1”, denominator is “num2”.

Solution: if num2=0 then print “undefined”, otherwise print the result of the division “R”.

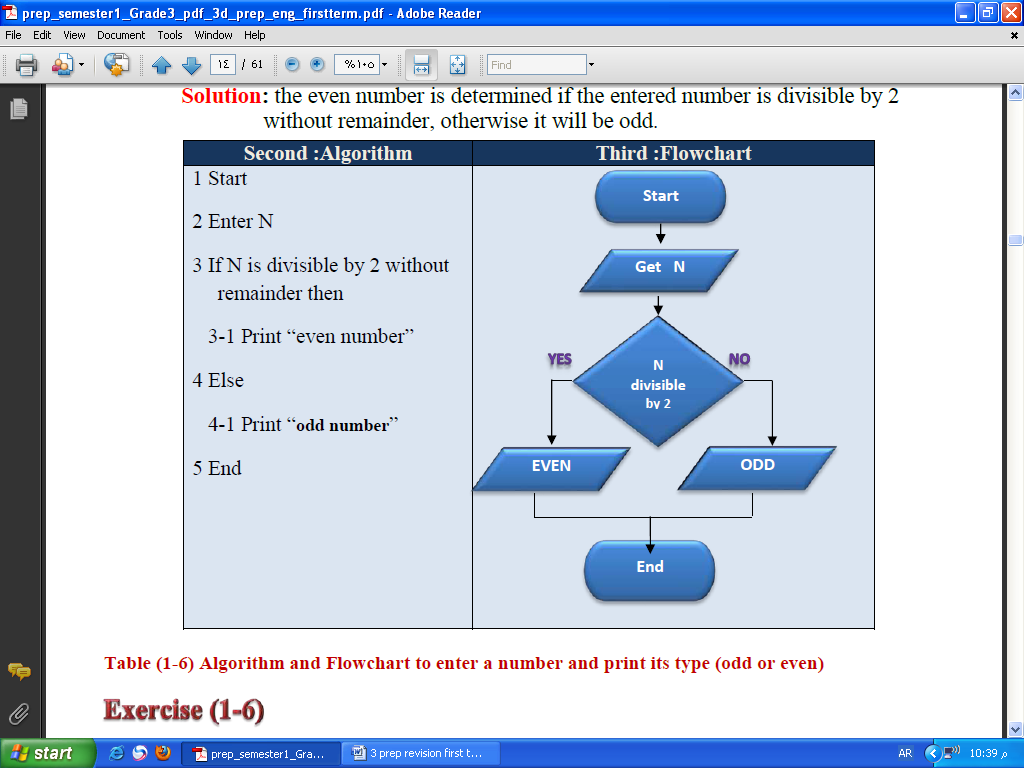


**7: Draw aflowchart for aprogram that obtains anumber from the user. Determine the number type (even or odd)**

First: Define the problem

Output: print the number type (even or odd).

Input: the number “N”.

Solution: the even number is determined if the entered number is divisible by 2 without remainder, otherwise it will be odd.

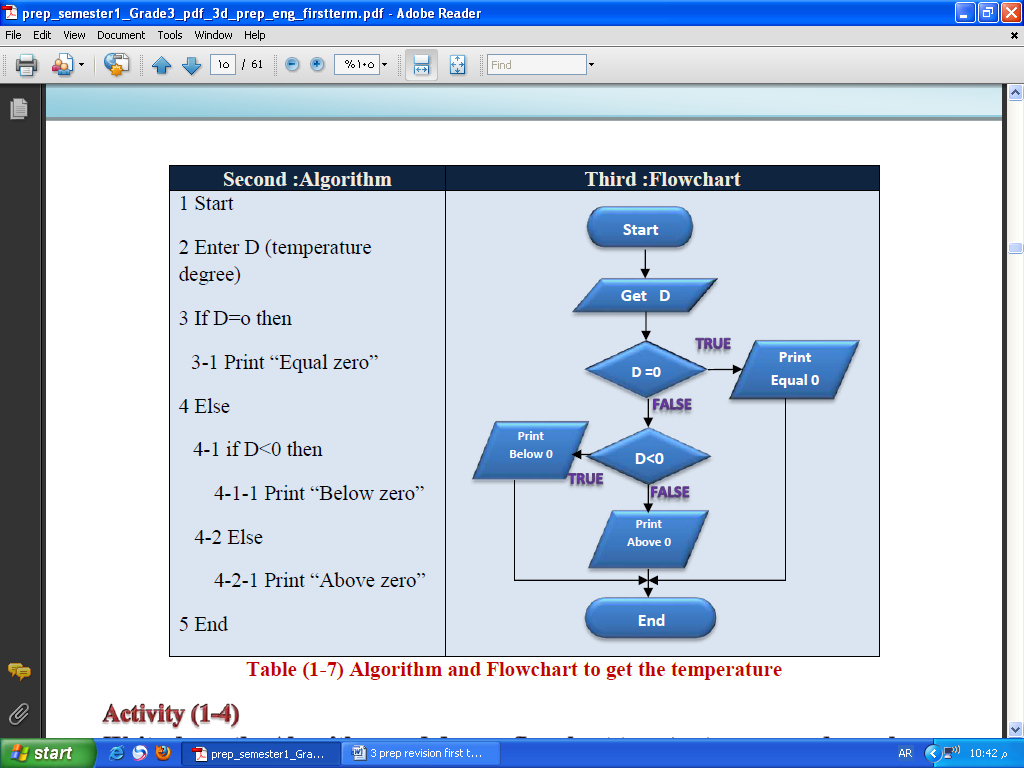
**8: Draw the flowchart to get a temperature degree , and print out the following results “greater than zero “ – “less than zero” or “equal zero “**

First: Define the problem

Output: print out “greater than zero” – “less than zero “or “equal zero”.

Input: temperaturedegree Celsius “D”.

Solution: the temperature degree entered will be compared to zero.



**9: Write down the algorithm, and draw aflowchart to center two unequal numbers, then print the largest is….? And the smallest number is ….?**

First: Define the problem

Output: print out “the largest number is ...? “– “the smaller number is .…? “

Input: X, Y so x not equal y

Solution: ………………

|  |  |
| --- | --- |
| **Second :Algorithm** | **Third :Flowchart** |
| 1. start 2. enter value of X ,Y 3. if X>Y then   3- 1 the largest number is X  3- 2 the largest number is Y   1. end | large.jpg |

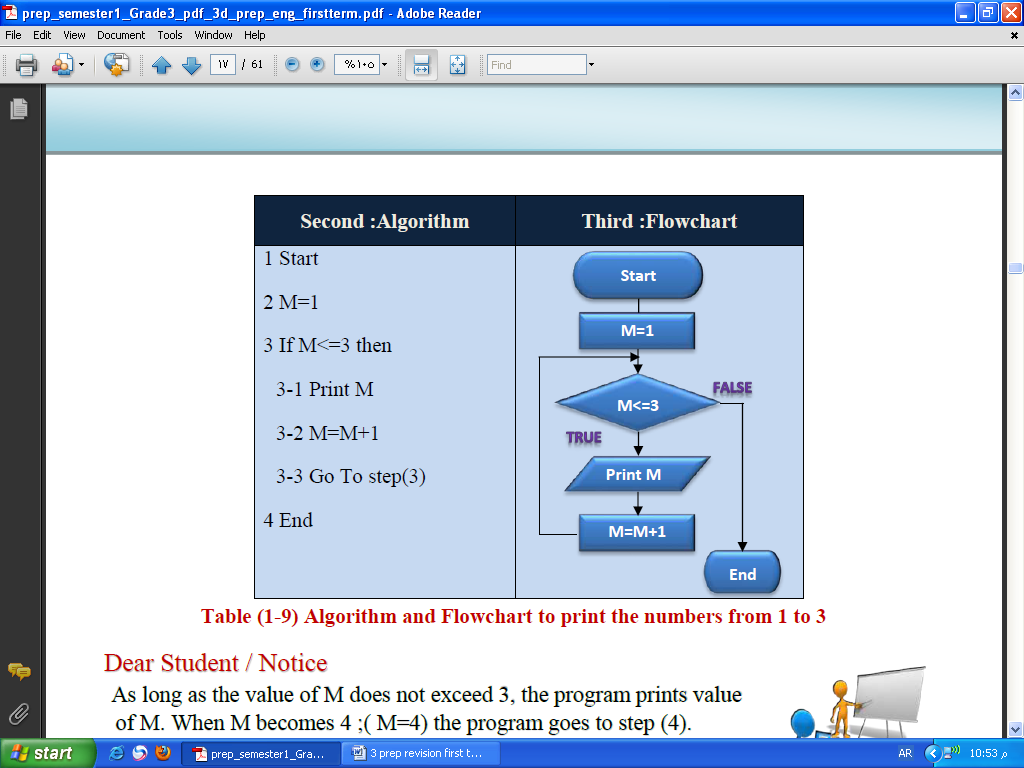
**10: The following flowchart is used to calculate the Area of a circle with radius “R”. Redraw the flowchart so that it displays the message “not allowed” and exist from the program (when the value of “R” is negative).**

|  |  |
| --- | --- |
| **Flowchart** | **Modified Flowchart** |
|  | not.jpg |
| **Table (1-8) Flowchart to calculate the area of a circle** | |

**11: Print out the numbers from 1 to 3**

First: Define the problem

Output: print numbers from 1 to 3

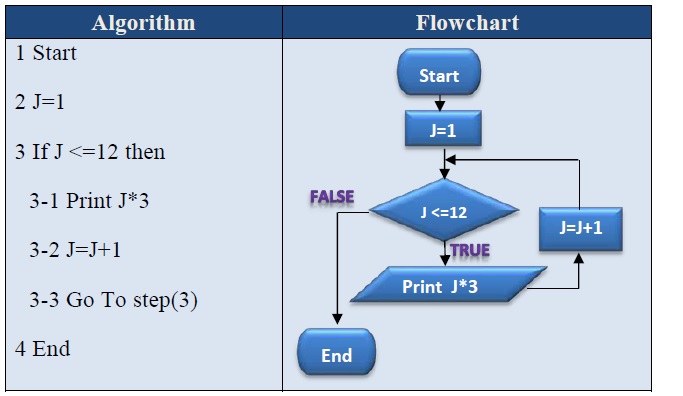
Input: number M

Solution: print number M and increment it by

1 then continue printing until the value of

M become greater than 3

**12-Print the multiplication table of number 3.**



**13-Print the multiplication table of entered number J**

**What is the value of variable J before the decision is not right and the loop end.**

imposing the entered value of variable J start from 10

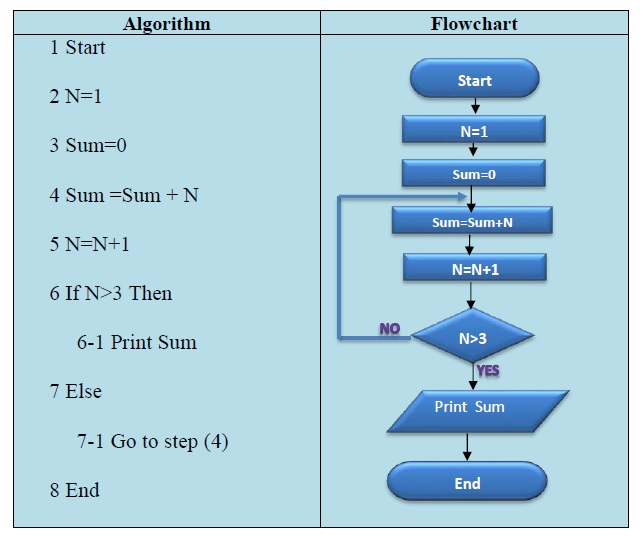
|  |  |  |
| --- | --- | --- |
| **1- start** | **The value of J** | **Result** |
| **2- J=10** | **10** |  |
| **3- if J<=12 (True)** | **10** |  |
| **3-1- print J\*3** | **10** | **30** |
| **3-2- J=J+1** | **11** |  |
| **3-3- go to step 3** | **11** |  |
| **3- if J<=12 (True)** | **11** |  |
| **3-1- print J\*3** | **11** | **33** |
| **3-2- J=J+1** | **12** |  |
| **3-3- go to step 3** | **12** |  |
| **3- if J<=12 (True)** | **12** |  |
| **3-1- print J\*3** | **12** | **36** |
| **3-2- J=J+1** | **13** |  |
| **3-3- go to step 3** | **13** |  |
| **3- if J<=12 (False)** | **13** |  |
| **4- end** | **13** |  |
|  |  |  |

|  |  |
| --- | --- |
| **Algorithm** | **flowchart** |
| **1- start**  **2- enter N**  **3- J=1**  **4- if J<=12 then**  **4-1- print J\*N**  **4-2- J=J+1**  **4-3- go to step 4**  **5- end** | **ggggg.jpg** |

**14-print the even numbers from 1 to 10**

|  |  |
| --- | --- |
| **Algorithm** | **flowchart** |
| **1- start**  **2- M=2**  **3-if M<=10 then**  **3-1- print M**  **3-2- M=M+2**  **3-3- go to step 3**  **4- end** | **even.jpg** |

**15- print out the sum of integer numbers from 1 to 3**

****

**16- print out the sum of odd numbers from 1 to 10.**

|  |  |
| --- | --- |
| **Algorithm** | **flowchart** |
| **1- start**  **2- N=1**  **3-sum=0**  **4-sum=sum+N**  **5- N=N+2**  **6- if N>10 then**  **6-1- print sum**  **7-otherwise**  **7-1- go to step 4**  **8-end** | **sum odd.jpg** |

**17- print the sum of even numbers from 1 to 10**

|  |  |
| --- | --- |
| **Algorithm** | **flowchart** |
| **1- start**  **2- N=2**  **3-sum=0**  **4-sum=sum+N**  **5- N=N+2**  **6- if N>10 then**  **6-1- print sum**  **7-otherwise**  **7-1- go to step 4**  **8-end** | **sum even.jpg** |

**Quotations:**

**First: Put (****) in front of the correct sentence and (X) in front of the wrong one:**

|  |  |  |
| --- | --- | --- |
| 1 | Flowcharts use standard symbols and lines to represent a problem algorithm. | (√ ) |
| 2 | You can use any Geometric shape to represent Algorithm when drawing flowcharts. | (× ) |
| 3 | The symbol is used to represent start and end of flowchart. | (√ ) |
| 4 | The rectangle symbol is used to represent the data input process. | (× ) |
| 5 | The symbol is used to represent a decision process in flowcharts. | (√ ) |
| 6 | The problem means that an objective or output is required to reach. | (√ ) |
| 7 | Preparing a c10up of tea is an example of a problem. | ( √ ) |
| 8 | Problem solving is the steps, activities, and processes to be done to reach an output or objective. | (√ ) |
| 9 | The program documentation is a set of procedures arranged logically for solving a specific problem. | (× ) |
| 10 | The program testing is writing down all the steps taken to solve a problem. | ( × ) |
| 11 | Documenting the program means making sure that the program is free of errors. | ( × ) |
| 12 | Algorithm is a set of procedures arranged logically for solving a specific problem. | ( √ ) |
| 13 | The program documentation is writing down all the steps taken to solve a problem. | (√ ) |
| 14 | Testing the program means making sure that the program is free of errors. | (√ ) |
| 15 | Flowcharts are schematic representations which depend on drawing some standard symbols to clarify the order of procedures to solve a problem. | (√ ) |
| 16 | Flowcharts help to facilitate understanding of the problem, analyze and convert it to a program. | (√ ) |

**Second: Choose the appropriate answer to complete each phrase of the following:**

**1- Steps, activities and procedures to be done to reach an objective or an output - can be called:**

a. problem definition b. problem c. **problem solving**

**2- On drawing flowcharts we use:**

a. **standard symbols and lines** b. all geometric figures c. one geometric figure

**3- A set of procedures arranged logically for solving a specific problem –can be called:**

a. problem b. **algorithm** c. program testing

**4- Making sure that the program is free of errors –can be called:**

a. **program testing** b. program documentation c. algorithm

**5- Writing down all the steps taken to solve a problem errors–can be called:**

a. **program documentation** b. program testing c. flowcharts

**Problem-solving approach includes many terminologies, the terminology that expresses the preparation of a cup juice is:**

a. Flowchart b. algorithm c. **problem**

**7- Problem-solving approach includes many of the terminologies, the terminology that expresses the mathematical problem is:**

a. Algorithm b. **problem** c. program design

**8- A schematic representation that depends on drawing some standard symbols to clarify the order of procedures to solve a problem can be called:**

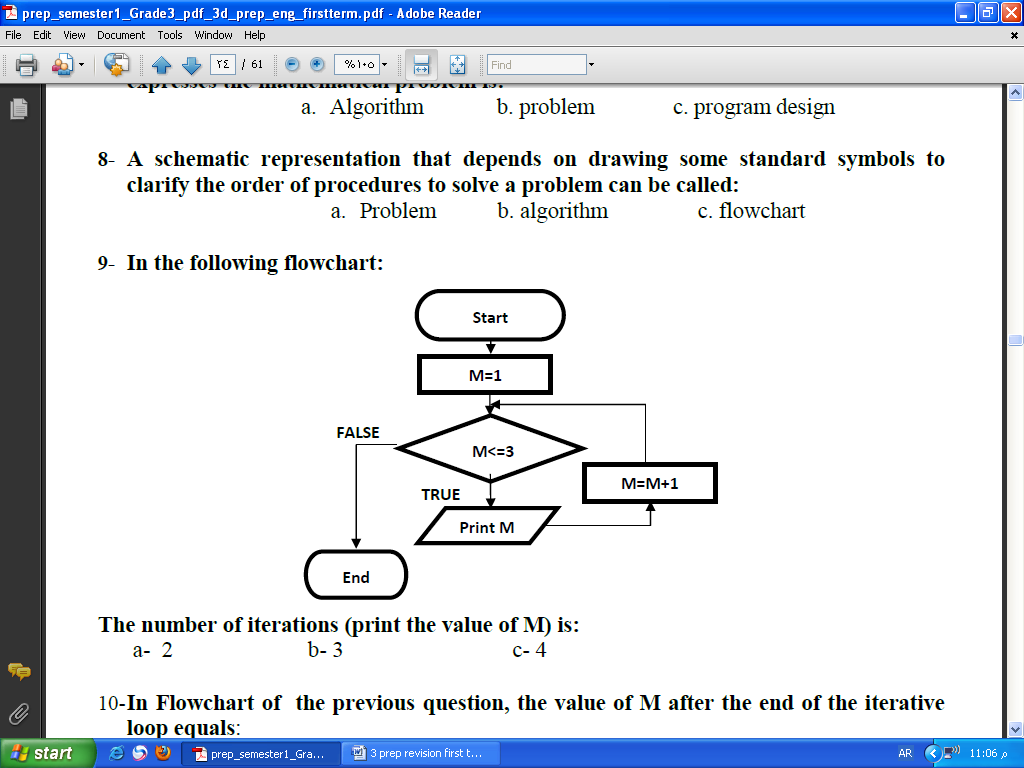
a. Problem b. algorithm c. **flowchart**

**9- In the following flowchart: The number of iterations (print the value of M) is:**

a- 2 b- **3** c- 4

**In Flowchart of the previous question, the value of M after the end of the iterativeloop equals**:

a. 2 b- 3 c- **4**

****

**Chapter 2: Visual basic**

**Create a project with the name “my first project “ and the solution name is “ my first solution”**

**And then add another project to the solution write the name “ my second project”**

**Quations**

**First: Put (****) in front of the correct sentence and (X) in front of the wrong one:**

|  |  |  |
| --- | --- | --- |
| 1 | The VB.net language is one of the high level languages. | (√ ) |
| 2 | The VB.net language is one of Event Driven languages. | (√ ) |
| 3 | The VB.net language is the only high level language. | (× ) |
| 4 | The VB.net language is considered a high level language because it is easy to learn. | (√ ) |
| 5 | The VB.net language is used in producing Windows applications and Web applications. | ( √ ) |
| 6 | The VB.net language is used in producing Web applications only. | (× ) |
| 7 | The VB.net language can't be used in producing Windows applications | (× ) |
| 8 | Every Object is characterized by certain properties and certain behavior when a certain event occurs on it. | ( √ ) |
| 9 | Events and procedures which belong to any object in VB.net language are called properties. | ( × ) |
| 10 | The name, the size and color of an object are all samples of events that can occur to the object in VB.net language. | ( × ) |
| 11 | The name, the size and color of an object are all samples of properties of some objects in VB.net language. | ( √ ) |
| 12 | The Events are the commands and instructions which are carried out when a certain procedure occurs to the object in VB.net language. | ( × ) |
| 13 | The procedures are the commands and instructions which are carried out when a certain procedure occurs to the object in VB.net language. | ( × ) |
| 14 | Pressing click and D-click are samples of some events that can occur to an object in VB.net language. | ( √ ) |
| 15 | Framework.net contains Compilers, libraries and runtime environment | ( √ ) |
| 16 | Compilers in Framework. Net are considered the environment of runtime for applications which are produced in VB.net language. | ( × ) |
| 17 | Compilers are programmes that translate commands and instructions written by the programmer from the high level language into machine language. | ( √ ) |
| 18 | Object oriented programming languages are the languages which work through objects that carry out procedures when a certain event occurs to them. | ( √ ) |
| 19 | All programming languages which carry out a group of commands and instructions are considered as Event Driven languages. | ( × ) |
| 20 | Visual Studio is considered IDE because it includes a group of tools, elements and characteristics necessary to produce applications. | ( √ ) |

**Second: Choose the correct answer to complete each statement:**

**1-Object Oriented programming language depends on:**

a- using Windows applications.

b- using Web applications

c- **objects in computer memory.**

**You can produce Windows applications or Web applications by using:**

a-Objects in computer memory

b-**VB.net language**

c- Properties and Events

**3- Characteristics which describe the object such as size, name and colour are called:**

a-**Properties**

b-procedures

c-Events

**4-Click on Button is:**

a-property

b-procedure

c-**Event**

**5-Commands and instructions which we want to carry out are called:**

a-properties

b-**producers**

c-Events

**6- The Properties term refers to:**

a- **Features that describe the object.**

b-Events that can occur to the object.

c- Commands and instructions that are carried out.

**7-The Events term refers to :**

a- properties that describe the object.

b-**Events that can occur to the object.**

c- Commands and instructions that are carried out.

**8-The Procedures term refers to:**

a-properties that describe the object.

b-Events that can occur to the object.

c- **Commands and instructions that are carried out.**

**9-libraries, Compilers and Environment of runtime of applications are the most important components of:**

a-Object Oriented.

b-Event Driven.

c-**Framework.net.**

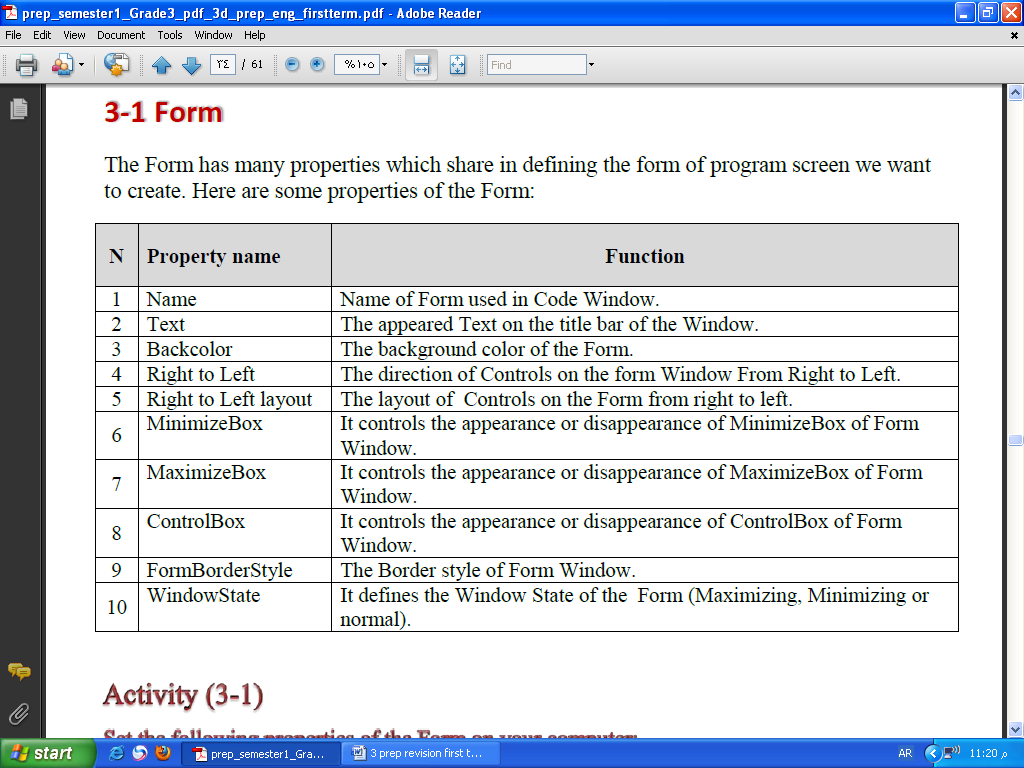
**10- IDE is called:**

a-Visual Basic.net

b-**Visual Studio.**

c-Framwork.net.

**Chapter 3 controls**



**Questions**

**First: Put () in front of the correct sentence and (X) in front of the wrong one:**

|  |  |  |
| --- | --- | --- |
| 1 | The function of the property RightToLeft of the Form is to define the direction of Controls from right to left. | ( √ ) |
| 2 | The function of the property RightToLeft of the Form is to define the state of the Form on the screen in a position of Maximizing or Minimizing. | ( × ) |
| 3 | Setting the property ControlBox of the Form can control the Form in a position of Maximizing during programme.runtime. | ( × ) |
| 4 | The property “Name" is used in showing a certain Text in the title bar of user window a name of the window. | ( × ) |
| 5 | The property Text is used in showing a certain text the title bar of of user window. | ( √ ) |
| 6 | Setting some properties of the Form is applied to Controls which are placed on the Form. | ( √ ) |
| 7 | The effect of setting the Window State property of the form appears only in runtime mode | ( √ ) |
| 8 | You can change the location of Command Button on the Form through Size property. | ( × ) |
| 9 | You can change the location of Command Button on the Form through Location property. | ( √ ) |
| 10 | Placing Controls automatically on the Form on the co-ordinate (0-0) is in the middle of the Form. | ( √ ) |
| 11 | You can change the size of Label manually if Auto Size=true | ( × ) |
| 12 | You can change the size of Label manually if Auto Size=false | ( √) |
| 13 | "Textbox control tool: is the only tool which has the property password Chart | ( √ ) |
| 14 | "Textbox control tool: is the only tool which has the property Auto Size | ( × ) |
| 15 | ListBox and ComboBox share in "Item " property. | ( √ ) |
| 16 | ListBox and andComboBox share in " Suggest " property | ( × ) |
| 17 | GroupBox is the tool used in contain a group of controls, these controls have the same function on the Form. | ( √ ) |
| 18 | ListBox is the tool used in contain a group of controls, these controls have the same function on the Form. | ( × ) |
| 19 | CheckBox can be used on the Form to choose the Gender of student male or female. | ( × ) |
| 20 | Combobox is the control tool that allows the user to choose one element of several elements in the smallest possible space on the form window | ( √ ) |

**Second: Choose the correct answer to complete each statement:-**

**1- The function of "Right to Left" property of the Form is:**

a- **define the direction of Control tools from Right to Left.**

b- define whether the layout of ControlTools on the Form is from Right to Left.

c-define the state of the window in a state of maximaizing or minimaizing.

**2- ControlBox property of the Form is helping to:**

a- showing or hiding of Maximaizing Box.

b- control the appearance of the Form whether it is in a position of Minimaizing / Maximaizing / Normal.

c-**Control the appearance or disappearance of ControlBox in the Form.**

**3-The used property in showing a certain Text on the titlebar of a Form is :**

a- Name b-**Text** c-FormBorderStyle

**4-On setting some properties of the Form, they are applied on Control Tools**

**Which are placed on the Form (one of them is):**

a-Name b-**Forecolor** c-Text

**5-The effect of setting this property doesn't appear unless in runtime mode (This property is):**

a-FormBorderStyle b-**WindowState** c-RightToLeft

**6-The property which is responsible for the size, shape and effect of the Text font shown on the Button is**

a-Backcolor b-Forecolor c-**Font**

**7-You can change the position of the Button on the Form through the following processes except for :**

a-drag and drop by the mouse

b-**setting Size property**

c-setting Location property

**8-You can change the position of the Button on the Form through :**

a. **Setting Location property**

b-setting Size property

c-the eight squares around the Button

**9-On inserting any Control Tool by pressing D-Click from the Toolbox on the Form , the appropriate place to be shown is :**

a-**coordinate (0,0)**

b-the middle of the Form

c-the position of Control Tool is different according to the size of the Form

**10-The size of Label is defined automatically on the Form if the property is:**

a-Auto Size = False b- Border Style= Fixed Single c- **Auto Size=True**.

**11-You can change the size of control "Label" manually if the property is :**

a- **Auto Size = False**- b- Border Style= Fixed Single c- Auto Size=True-

**12-The following properties belong to TextBox except for:**

a-**AutoSize** b-MultiLine c-MaxLength

**13-The Object TextBox is marked by one property :**

a-AutoSize b-Name c-**PasswordChart**

**14-The right value which can be used to set the PasswordChart of the TextBoxis :**

a-Pw b-True **c-\***

**15-The ListBox and ComboBox share in this property :**

a-Suggest b-**Item** c-SelectionMode

**16-The ControlTool which is used in containing a group of controls that have the same function on the Form is:**

a-ComboBox b-ListBox c-**GroupBox**

**17-The Control tool which can be used on the Form to choose Gender of the student "male"or "female" is:**

a-**RadioButton** b-CheckBox c-TextBox

**18-The ControlTool which can be used on the Form and allows the user to choose more than one alternatives is :**

a-RadioButton b-GroupBox c-**CheckBox**

**19- The ControlTool which can be used on the Form and allows the user to choose more than one item is :**

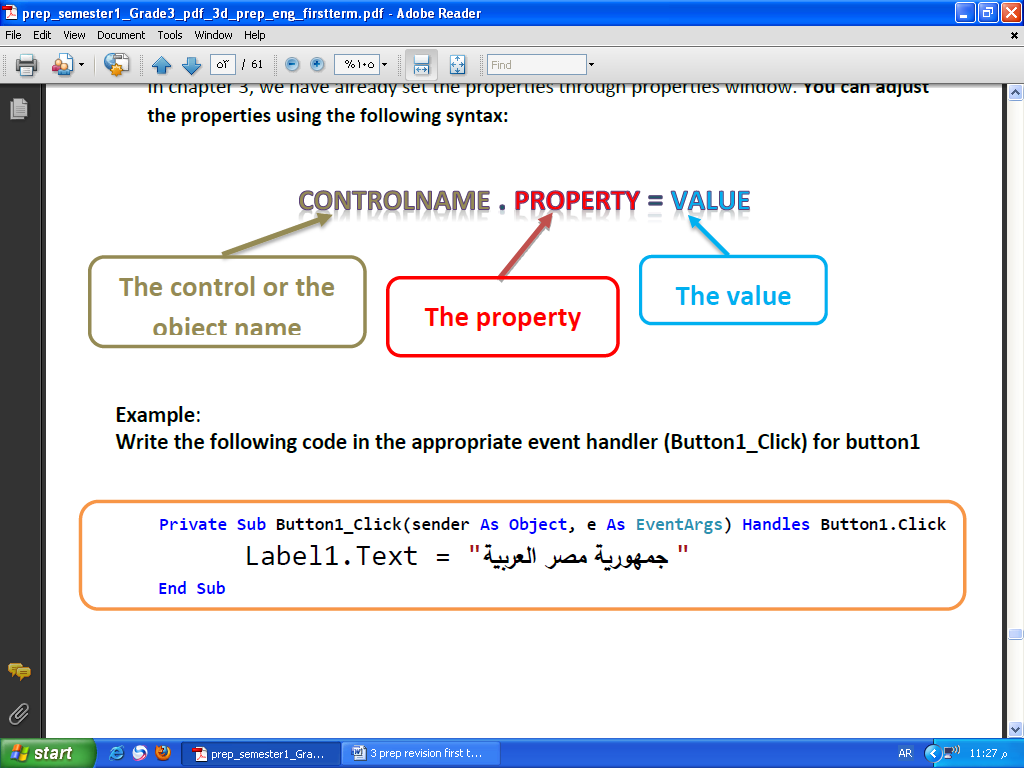
a-RadioButton b-GroupBox c-**CheckBox**

**20-The ControlTool which allows the user to choose one item of 15**

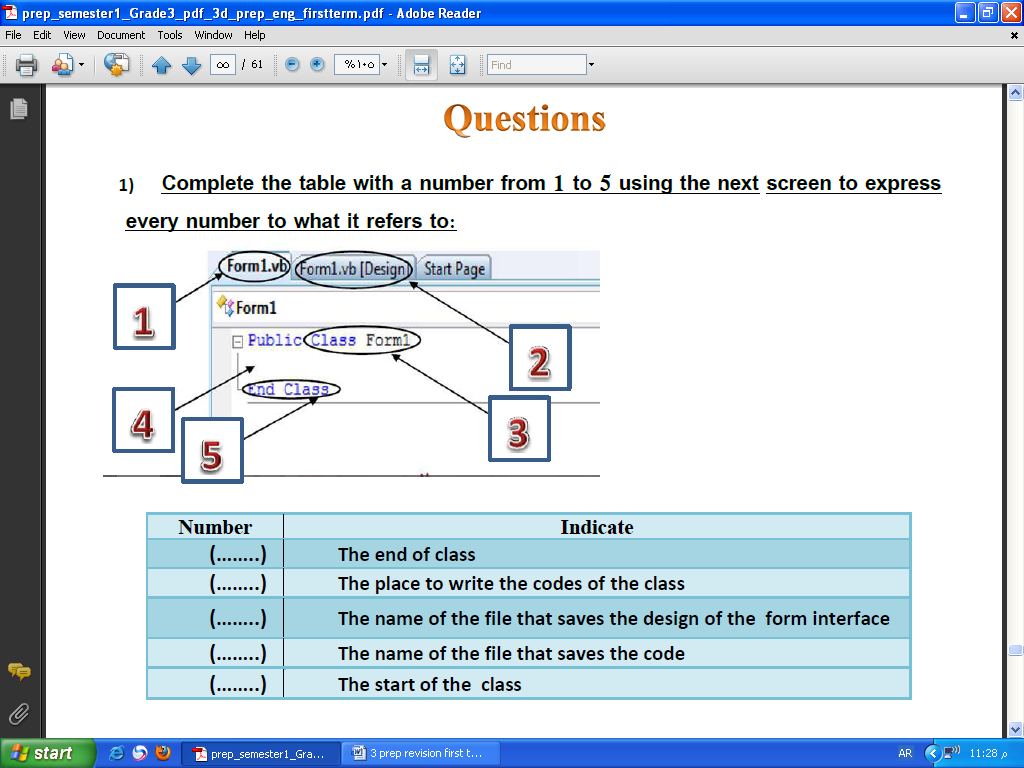
**in the smallest possible area on the Form is:**

a-**ComboBox** b-ListBox c-RadioBox

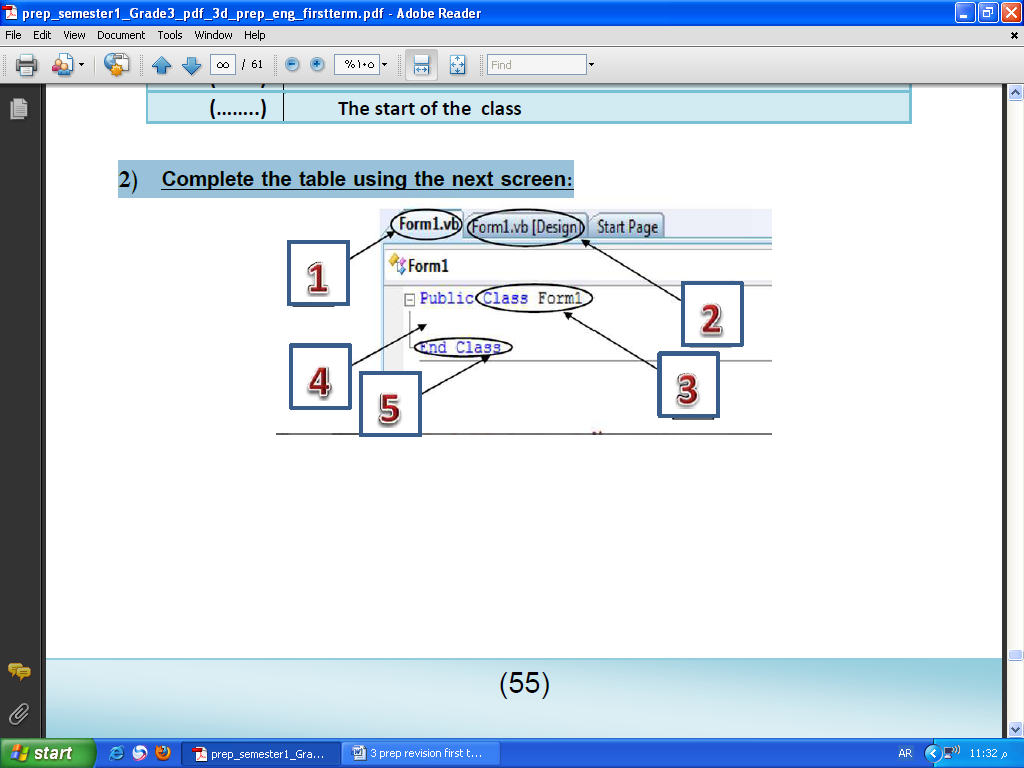
**Chapter 4 code window**



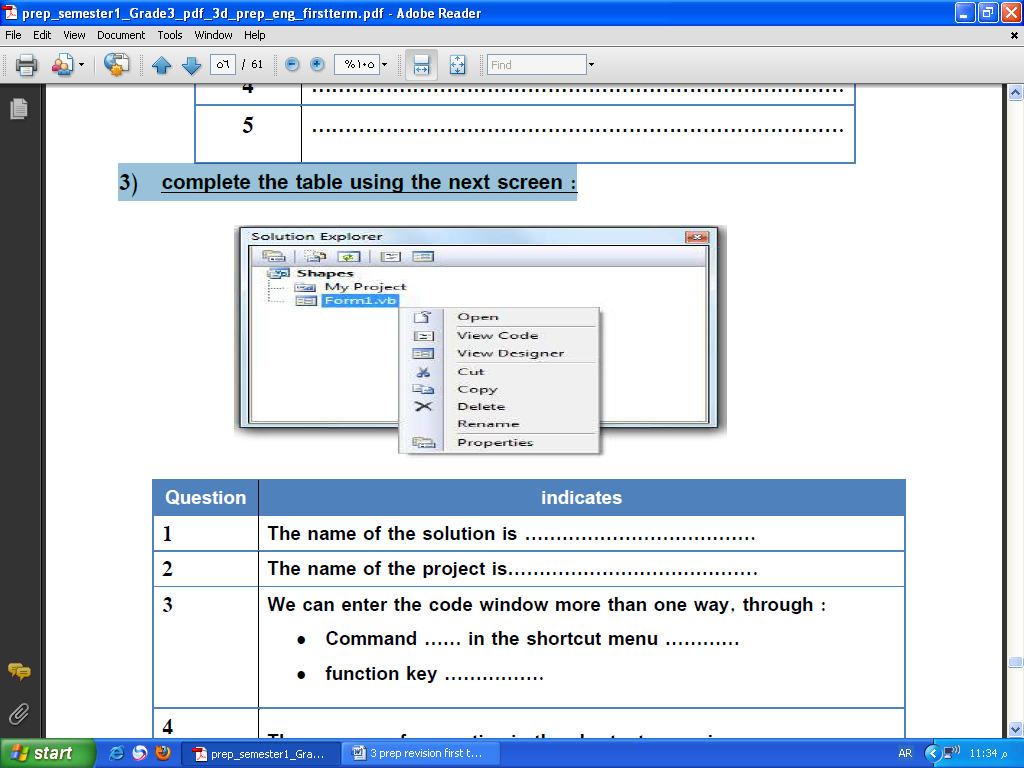
**Quations :**

1. **Complete the table with a number from 1 to 5 using the next screen to express every number to what it refers to:**

|  |  |
| --- | --- |
| NO. | **Indicate** |
| (…5.) | The end of class |
| (…4.) | The place to write the codes of the class |
| (2….) | The name of the file that saves the design of the form interface |
| (…1.) | The name of the file that saves the code |
| (3….) | The start of the class |

1. **Complete the table using the next screen:**

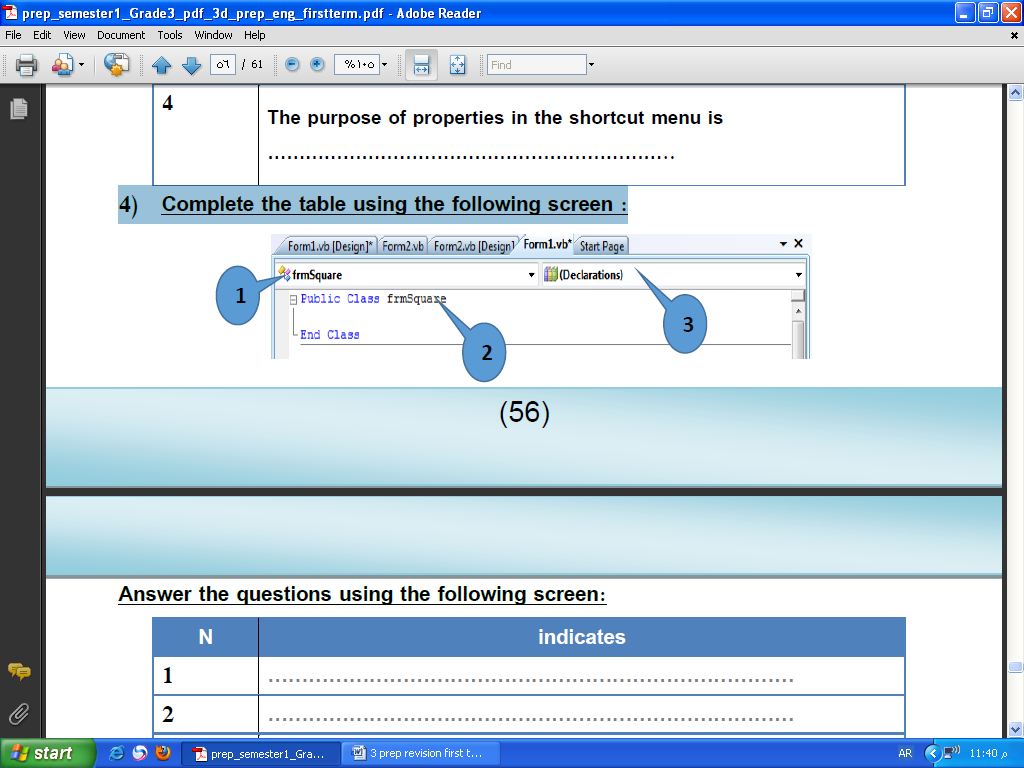
|  |  |
| --- | --- |
| NO. | **Indicates** |
| 1 | Name of the file where codes are saved. |
| 2 | Name of the file where the Form window interface is saved |
| 3 | The declaration of Class; its name is (Form1). |
| 4 | Space between two lines; to type codes for the Class (Form1) |
| 5 | The end of the class (form 1). |

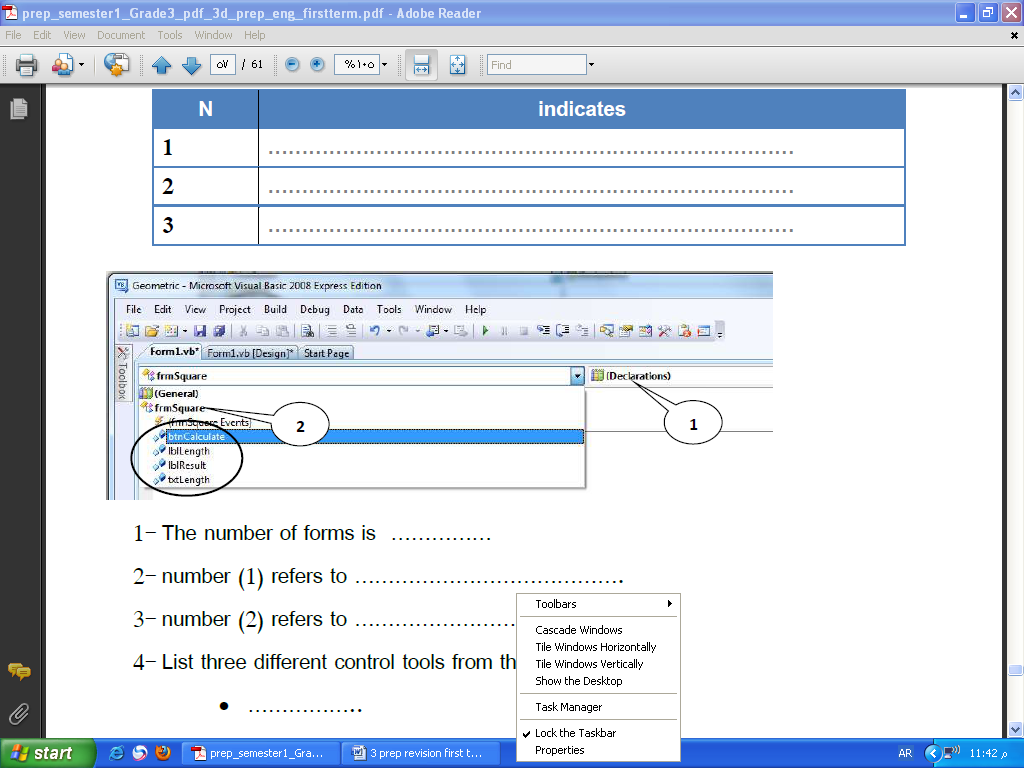
1. **complete the table using the next screen :**

|  |  |
| --- | --- |
| NO. | **Indicates** |
| 1 | The name of the solution is ……**shapes**………… |
| 2 | The name of the project is……**shapes**………… |
| 3 | We can enter the code window more than one way, through :   * Command **view code** in the shortcut menu **context** * function key …**F7**……. |
| 4 | The purpose of properties in the shortcut menu is ……**format the properties of the selected object**….. |

1. **Complete the table using the following screen :**

|  |  |
| --- | --- |
| NO. | **Indicates** |
| 1 | A drop-down menu of (Class Names) that displays the names of controls on the form |
| 2 | Form Name (frmsquare) |
| 3 | A drop-down menu of (Method Names) or events; associated with the item selected from the (Class Names) menu. |





1- The number of forms is ………**one**……………

2- number (1) refers to **… menu of (Method Names) or events; associated with the item selected….**

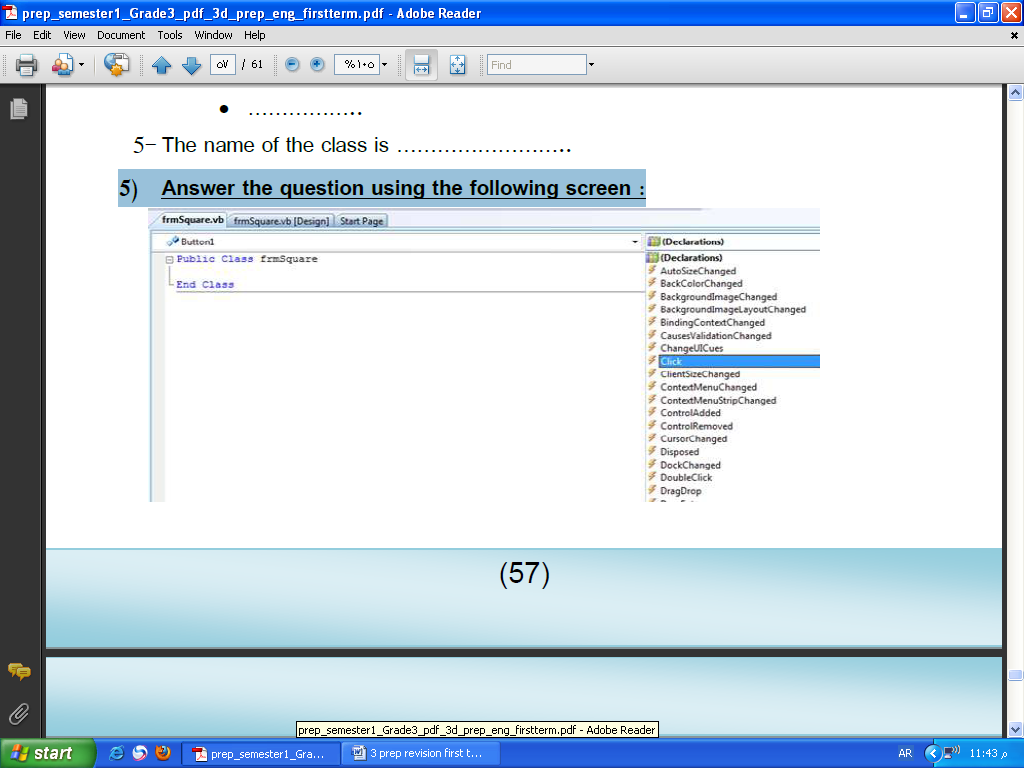
3- number (2) refers to … **menu of (Class Names) that displays the names of controls on the form**..…….

4- List three different control tools from the previous screen

* …**btncalculate**…..
* ……**blblength**…..
* ……**txtlength**..

5- The name of the class is ……**frmsquare**………..

1. **Answer the question using the following screen :**



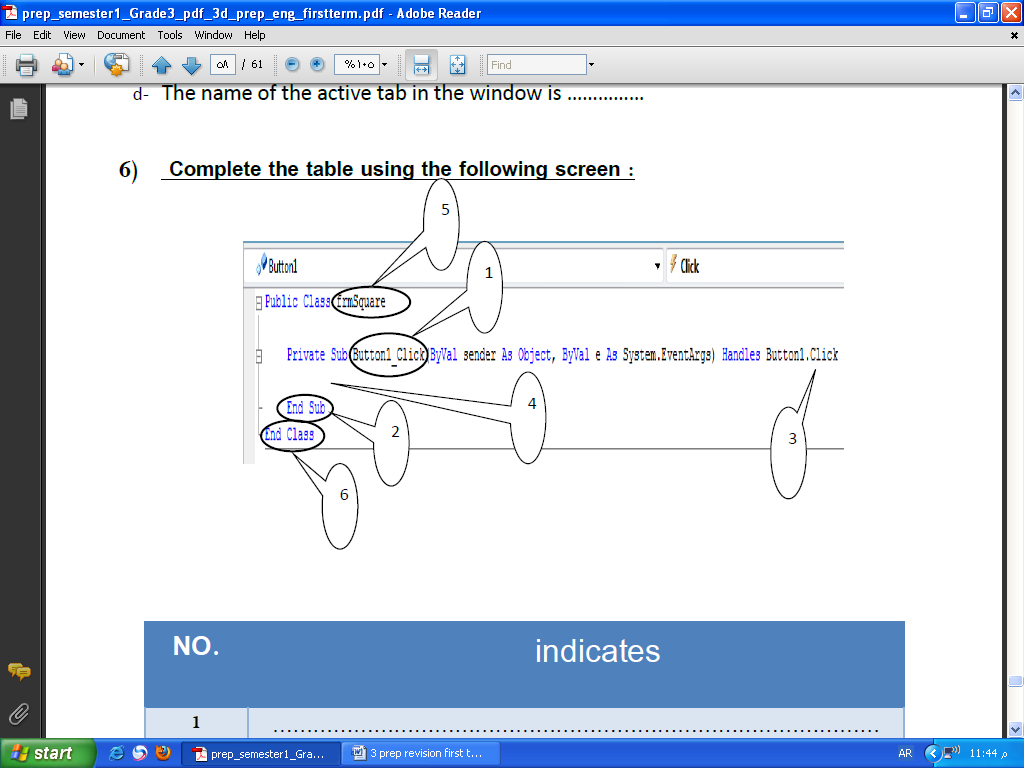
a- From the previous screen write 3 different events :…**click**…… …**double click**… …**AutoSizeChanged**……

b- **frmSquare** refers to ……**class name**…….

c- The events in the window belong to the control ………**Button1**………..

d- The name of the active tab in the window is …**frmsquare.Vb**…

1. **Complete the table using the following screen :**

****

indicates**NO.**

|  |  |
| --- | --- |
| **NO.** | **Indicates** |
| 1 | **The procedure name composed of (object name, event name).** |
| 2 | **End of procedure line.** |
| 3 | **What causes the call of the procedure (event occurrence)** . |
| 4 | **Between the two lines shown; the code that will be executed on calling the procedure is written after the occurrence of the (Event** |
| 5 | **The declaration of the class line (frmSquare)** |
| 6 | **The end of (class) line.** |

1. **Explain the components of the general syntax to adjust the properties of controls programmatically:**

ControlName.Property = Value

**… The control or the object name…….**

… **The property**…..

**…… The value………**

1. **Explain the following codes through your pervious study for the general syntax to adjust the properties of control programmatically :**

(A) Button2.Text = "END"

………**write text END on the face of tool………….**

(B) Label1.AutoSize = True

**……Change size of Label1 automatically depend on text written inside………….**