

<p>In Exercises 1 through 6, evaluate the numeric expression without the computer.</p> <ol style="list-style-type: none"> 1. $3 * 4$ 2. 7^2 3. $1 / (2^3)$ 4. $3 + (4 * 5)$ 5. $(5 - 3) * 4$ 6. $3 * ((-2)^5)$ 	<p>In Exercises 7 through 10, evaluate the Mod operation.</p> <ol style="list-style-type: none"> 7. $6 \text{ Mod } 2$ 8. $14 \text{ Mod } 4$ 9. $7 \text{ Mod } 3$ 10. $5 \text{ Mod } 5$
<p>In Exercises 11 through 16, determine whether the name is a valid variable name.</p> <ol style="list-style-type: none"> 11. sales.2006 12. room&Board 13. fOrM_1040 14. 1040B 15. expenses? 16. INCOME 2006 	<p>In Exercises 17 through 22, evaluate the numeric expression where $a = 2$, $b = 3$, and $c = 4$.</p> <ol style="list-style-type: none"> 17. $(a * b) + c$ 18. $a * (b + c)$ 19. $(1 + b) * c$ 20. a^c 21. $b^c (c - a)$ 22. $(c - a)^b$
<p>In Exercises 23 through 28, write an event procedure to calculate and display the value of the expression.</p> <ol style="list-style-type: none"> 23. $7 \cdot 8 + 5$ 24. $(1 + 2 \cdot 9) 3$ 25. 5.5% of 20 26. $15 - 3(2 + 34)$ 27. $17(3 + 162)$ 28. $4\frac{1}{2} - 3\frac{5}{8}$ 	<p>In Exercises 29 through 34, find the value of the given function.</p> <ol style="list-style-type: none"> 29. $\text{Int}(10.75)$ 30. $\text{Int}(9 - 2)$ 31. $\text{Math.Sqrt}(3 * 12)$ 32. $\text{Math.Sqrt}(64)$ 33. $\text{Math.Round}(3.1279, 3)$ 34. $\text{Math.Round}(-2.6)$
<p>In Exercises 35 through 40, find the value of the given function where a and b are numeric variables of type Double, $a = 5$ and $b = 3$.</p> <ol style="list-style-type: none"> 35. $\text{Int}(-a/2)$ 36. $\text{Math.Round}(a / b)$ 37. $\text{Math.Sqrt}(a - 5)$ 38. $\text{Math.Sqrt}(4 + a)$ 39. $\text{Math.Round}(a + .5)$ 40. $\text{Int}(b * .5)$ 	

In Exercises 1- 8, determine the output displayed in the list box by the lines of code.

1.

```
Dim amount As Double
amount = 10
lstOutput.Items.Add(amount - 4)
```
2.

```
Dim a, b As Integer
a = 4
b = 5 * a
lstOutput.Items.Add(a + b)
```
3.

```
Dim n As Integer = 7
n += 1
With lstOutput.Items
    .Add(1)
    .Add(n)
    .Add(n + 1)
End With
```
4.

```
Dim num As Integer = 5
num = 2 * num
lstOutput.Items.Add(num)
```
5.

```
Dim a, b As Integer
lstOutput.Items.Add(a + 1)
a = 4
b = a * a
lstOutput.Items.Add(a * b)
```
6.

```
Dim tax As Double
tax = 200
tax = 25 + tax
lstOutput.Items.Add(tax)
```
7.

```
Dim x As Double = 3
x += 2
lstOutput.Items.Add(x * x)
lstOutput.Items.Add(x + 3 * x)
```
8.

```
Dim n As Double = 2, m As Double = 5
lstOutput.Items.Add(3 * n)
n += n
With lstOutput.Items
    .Add(n + m)
    .Add(n - m)
End With
```

In Exercises 9 - 14, identify the errors.

9.

```
Dim a, b, c As Double
a = 2
b = 3
a + b = c
lstOutput.Items.Add(c)
```
10.

```
Dim a, b, c, d As Double
a = 2
b = 3
c = d = 4
lstOutput.Items.Add(5((a+b)/(c+d)
))
```
11.

```
Dim balance, deposit As Double
balance = 1,234
deposit = $100
lstOutput.Items.Add(balance + deposit)
```
12.

```
Dim interest, balance As Double
0.05 = interest
balance = 800
lstOutput.Items.Add(interest*balance)
```
13.

```
Dim 9W As Double
9W = 2 * 9W
lstOutput.Add(9W)
```
14.

```
Dim n As Double = 1.2345
lstOutput.Items.Add(Round(n, 2))
```

In Exercises 15 and 16, complete the table by filling in the value of each variable after each line is executed.

15.

	x	y
Private Sub btnEvaluate_Click(...) Handles btnEvaluate.Click		
Dim x, y As Double		
x = 2		
y = 3 * x		
x = y + 5		
lstResults.Items.Clear()		
lstResults.Items.Add(x + 4)		
y = y + 1		
End Sub		

16.

	bal	inter	withDr
Private Sub btnEvaluate_Click(...) Handles btnEvaluate.Click			
Dim bal, inter, withDr As Double			
bal = 100			
inter = 0.05			
withDr = 25			
bal += inter * bal			
bal = bal - withDr			
End Sub			

SECTION 3.3 – LAB: write an event procedure to solve the problem and display the answer in a list box. The program should use variables for each of the quantities.

1. The following steps calculate a company's break-even point, the number of units of goods the company must manufacture and sell in order to break even:
 - a. Declare all variables.
 - b. Assign the value 5000 to the variable fixedCosts.
 - c. Assign the value 8 to the variable pricePerUnit.
 - d. Assign the value 6 to the variable costPerUnit.
 - e. Assign the value fixedCosts divided by (the difference of pricePerUnit and costPerUnit) to the variable breakEvenPoint.
 - f. Display the value of the variable breakEvenPoint in a list box.
2. The following steps calculate the balance at the end of three years when \$100 is deposited at the beginning of each year in a savings account at 5% interest compounded annually:
 - a. Declare all variables.
 - b. Assign the value 100 to the variable balance.
 - c. Increase the variable balance by 5% of its value, and add 100.
 - d. Increase the variable balance by 5% of its value, and add 100.
 - e. Increase the variable balance by 5% of its value.
 - f. Display the value of the variable balance in a list box.
3. The following steps calculate the percentage profit from the sale of a stock:
 - a. Declare all variables.
 - b. Assign the value 10 to the variable purchasePrice.
 - c. Assign the value 15 to the variable sellingPrice.
 - d. Assign, to the variable percentProfit, 100 times the value of the difference between sellingPrice and purchasePrice divided by purchasePrice.
 - e. Display the value of the variable percentProfit in a list box.
4. Suppose a ball is thrown straight up in the air with an initial velocity of 50 feet per second and an initial height of 5 feet. How high will the ball be after 3 seconds? Note: The height after t seconds is given by the expression $-16t^2 + v_0t + h_0$, where v_0 is the initial velocity and h_0 is the initial height.
5. According to FHA specifications, each room in a house should have a window area equal to at least 10 percent of the floor area of the room. What is the minimum window area for a 14-ft by 16-ft room?