39.
```
Private Sub btnOne_Click(...) Handles btnOne.Click
  btnOne.Visible = False
  btnTwo.Visible = True
  btnThree.Visible = True
  btnFour.Visible = True
End Sub

Private Sub btnTwo_Click(...) Handles btnTwo.Click
  btnOne.Visible = True
  btnTwo.Visible = False
  btnThree.Visible = True
  btnFour.Visible = True
End Sub

Private Sub btnThree_Click(...) Handles btnThree.Click
  btnOne.Visible = True
  btnTwo.Visible = True
  btnThree.Visible = False
  btnFour.Visible = True
End Sub

Private Sub btnFour_Click(...) Handles btnFour.Click
  btnOne.Visible = True
  btnTwo.Visible = True
  btnThree.Visible = True
  btnFour.Visible = False
End Sub
```

41.
```
Private Sub btnVanish_Click(...) Handles btnVanish.Click
  lblFace.Visible = False
End Sub

Private Sub btnReappear_Click(...) Handles btnReappear.Click
  lblFace.Visible = True
End Sub
```

43.
```
Private Sub btnAny_Click(...) Handles btnOne.Click, btnTwo.Click
  txtOutput.Text = "You just clicked on a button."
End Sub
```

CHAPTER 3

EXERCISES 3.1

1. 12 **3.** .125 **5.** 8 **7.** 2 **9.** 1 **11.** Not valid

13. Valid **15.** Not valid **17.** 10 **19.** 16 **21.** 9

23.
```
Private Sub btnCompute_Click(...) Handles btnCompute.Click
  lstOutput.Items.Add((7 * 8) + 5)
End Sub
```

25.
```
Private Sub btnCompute_Click(...) Handles btnCompute.Click
  lstOutput.Items.Add(0.055 * 20)
End Sub
```

27.
```
Private Sub btnCompute_Click(...) Handles btnCompute.Click
  lstOutput.Items.Add(17 * (3 + 162))
End Sub
```

29.

	x	y
`Private Sub btnEvaluate_Click(...) Handles btnEvaluate.Click`		
`  Dim x, y As Double`	0	0
`  x = 2`	2	0
`  y = 3 * x`	2	6
`  x = y + 5`	11	6
`  lstResults.Items.Clear()`	11	6
`  lstResults.Items.Add(x + 4)`	11	6
`  y = y + 1`	11	7
`End Sub`		

31. 6

33.
```
1
8
9
```

35.
```
1
  64
```

37.
```
2
  15
```

39. The third line should read `c = a + b`

41. The first assignment statement should not contain a comma. The second assignment statement should not contain a dollar sign.

43. 9W is not a valid variable name.

45.
```
Dim quantity As Integer = 12
```

47. 10 **49.** 6 **51.** 3.128 **53.** -3 **55.** 0 **57.** 6

59.
```
Private Sub btnCompute_Click(...) Handles btnCompute.Click
  Dim revenue, costs, profit As Double
  revenue = 98456
  costs = 45000
  profit = revenue – costs
  lstOutput.Items.Add(profit)
End Sub
```

61.
```
Private Sub btnCompute_Click(...) Handles btnCompute.Click
  Dim price, discountPercent, markdown As Double
  price = 19.95
  discountPercent = 30
  markdown = (discountPercent / 100) * price
  price = price – markdown
  lstOutput.Items.Add(Math.Round(price, 2))
End Sub
```

63.
```
Private Sub btnCompute_Click(...) Handles btnCompute.Click
  Dim balance As Double
  balance = 100
  balance += 0.05 * balance
  balance += 0.05 * balance
  balance += 0.05 * balance
  lstOutput.Items.Add(Math.Round(balance, 2))
End Sub
```

65.
```
Private Sub btnCompute_Click(...) Handles btnCompute.Click
  Dim balance As Double
  balance = 100
  balance = balance * (1.05 ^ 10)
  lstOutput.Items.Add(Math.Round(balance, 2))
End Sub
```

67.
```
Private Sub btnCompute_Click(...) Handles btnCompute.Click
  Dim acres, yieldPerAcre, corn As Double
  acres = 30
  yieldPerAcre = 18
  corn = yieldPerAcre * acres
  lstOutput.Items.Add(corn)
End Sub
```

69.
```
Private Sub btnCompute_Click(...) Handles btnCompute.Click
  Dim distance, elapsedTime, averageSpeed As Double
  distance = 233
  elapsedTime = 7 - 2
  averageSpeed = distance / elapsedTime
  lstOutput.Items.Add(averageSpeed)
End Sub
```

71.
```
Private Sub btnCompute_Click(...) Handles btnCompute.Click
  Dim waterPerPersonPerDay, people, days, waterUsed As Double
  waterPerPersonPerDay = 1600
  people = 315000000
  days = 365
  waterUsed = waterPerPersonPerDay * people * days
  lstOutput.Items.Add(waterUsed)
End Sub
```

EXERCISES 3.2

1. `Visual Basic` **3.** `Ernie` **5.** `flute` **7.** `123` **9.** `Your age is 21.`

11. `A ROSE IS A ROSE IS A ROSE` **13.** `5.5` **15.** `goodbye` **17.** `WALLAWALLA`

19.
```
ABC
2
4
55 mph
STU
```

21.
```
12
MUNICIPALITY
city
6
```

23. `8 (0 through 7)` **25.** `True`

27. The variable *phoneNumber* should be declared as type String, not Double.

29. *End* is a keyword and cannot be used as a variable name.

31. The IndexOf method cannot be applied to a number, only a string.

33.
```
Private Sub btnDisplay_Click(...) Handles btnDisplay.Click
  Dim firstName, middleName, lastName As String
  Dim yearOfBirth As Integer
  firstName = "Thomas"
  middleName = "Alva"
  lastName = "Edison"
  yearOfBirth = 1847
  txtOutput.Text = firstName & " " & middleName & " " & lastName &
                   ", " & yearOfBirth
End Sub
```

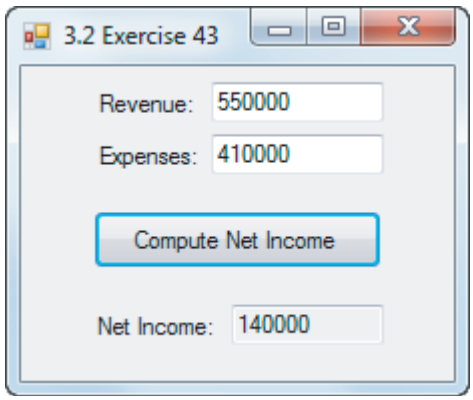
35.
```
Private Sub btnDisplay_Click(...) Handles btnDisplay.Click
  Dim publisher As String
  publisher = "Prentice Hall, Inc."
  txtOutput.Text = "(c) " & publisher
End Sub
```

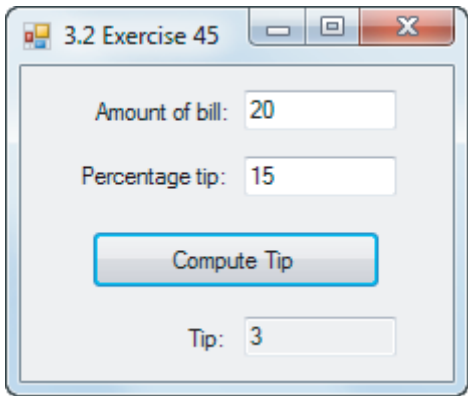
37.
```
Dim str As String  'Place in the Declarations section of the program
```

39.
```
Private Sub btnCompute_Click(...) Handles btnCompute.Click
  Dim distance As Double
  distance = CDbl(txtNumSec.Text) / 5
  distance = Math.Round(distance, 2)
  txtOutput.Text = "The distance of the storm is " & distance & " miles."
End Sub
```

41.
```
Private Sub btnCompute_Click(...) Handles btnCompute.Click
  Dim cycling, running, swimming, pounds As Double
  cycling = CDbl(txtCycle.Text)
  running = CDbl(txtRun.Text)
  swimming = CDbl(txtSwim.Text)
  pounds = (200 * cycling + 475 * running + 275 * swimming) / 3500
  pounds = Math.Round(pounds, 1)
  txtWtLoss.Text = pounds & " pounds were lost."
End Sub
```

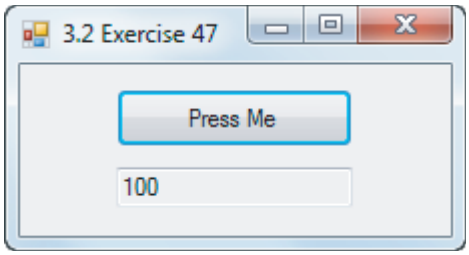
43.
```
Private Sub btnCompute_Click(...) Handles btnCompute.Click
  Dim revenue, expenses, income As Double
  revenue = CDbl(txtRevenue.Text)
  expenses = CDbl(txtExpenses.Text)
  income = revenue – expenses
  txtNetIncome.Text = CStr(income)
End Sub
```



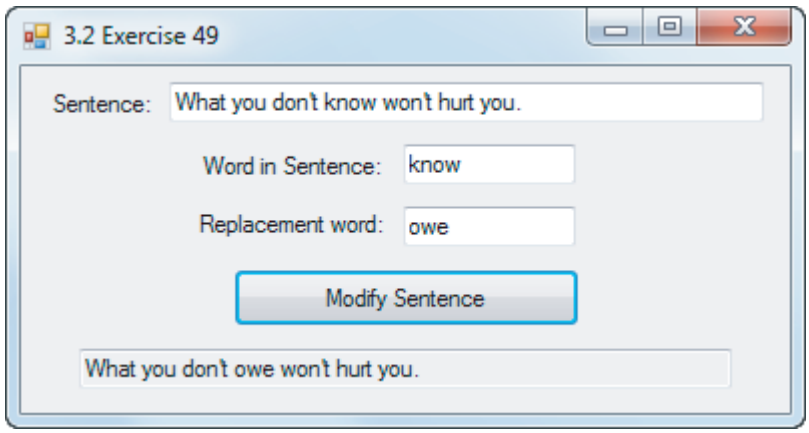


45.
```
Private Sub btnCompute_Click(...) Handles btnCompute.Click
  Dim amount, percentage, tip As Double
  amount = CDbl(txtAmount.Text)
  percentage = CDbl(txtPercentage.Text)
  tip = amount * (percentage / 100)
  txtTip.Text = CStr(Math.Round(tip, 2))
End Sub
```

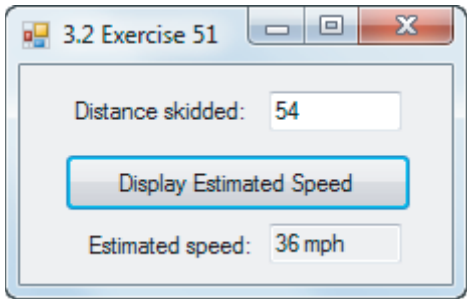
47.
```
Dim number As Integer = 100   'in Declarations section
'Note: the Text property of txtOutput was set to 100 at design time

Private Sub btnPressMe_Click(...) Handles btnPressMe.Click
  number = number – 1  'decrease number by 1
  txtOutput.Text = CStr(number)
End Sub
```



49.
```
Private Sub btnModifySentence_Click(...) Handles btnModifySentence.Click
    Dim sentence, oldWord, newWord As String
    Dim position As Integer
    sentence = txtSentence.Text
    oldWord = txtOriginalWord.Text
    newWord = txtReplacementWord.Text
    position = sentence.IndexOf(oldWord)
    txtOutput.Text = sentence.Substring(0, position) & newWord &
                     sentence.Substring(position + oldWord.Length)
End Sub
```



51.
```
Private Sub btnDisplay_Click(...) Handles btnDisplay.Click
    Dim speed, distance As Double
    distance = CDbl(txtDistanceSkidded.Text)
    speed = Math.Sqrt(24 * distance)
    speed = Math.Round(speed, 2)
    txtEstimatedSpeed.Text = speed & " mph"
End Sub
```



53.
```
Dim sum As Double   'sum of the scores entered
Dim num As Integer  'number of scores entered
```

```
Private Sub btnRecord_Click(...) Handles btnRecord.Click
  num += 1
  sum += CDbl(txtScore.Text)
  txtScore.Clear()
  txtScore.Focus()
End Sub

Private Sub btnCalculate_Click(...) Handles btnCalculate.Click
  txtAverage.Text = CStr(sum / num)
End Sub
```

55.
```
Private Sub btnCompute_Click(...) Handles btnCompute.Click
  Dim num1, num2, sum As Double
  num1 = CDbl(txtFirstNum.Text)
  num2 = CDbl(txtSecondNum.Text)
  sum = num1 + num2
  txtSum.Text = CStr(sum)
End Sub

Private Sub txtEitherNum_TextChanged(...) Handles _
                    txtFirstNum.TextChanged, txtSecondNum.TextChanged
  txtSum.Clear()
End Sub
```

EXERCISES 3.3

1. `1,235` **3.** `1,234.0` **5.** `0.0` **7.** `−0.67` **9.** `12,346.000` **11.** `12`

13. `$12,346` **15.** `($0.23)` **17.** `$0.80` **19.** `7.50%` **21.** `100.00%`

23. `66.67%` **25.** `Pay to France $27,267,622.00`

27. `25.6% of the U.S. population 25+ years old are college graduates.`

29. `The likelihood of Heads is 50%` **31.** `10/23/2010`

33. `Thursday, November 25, 2010` **35.** `10/2/2011` **37.** `4/5/2013` **39.** `29`

41. `You might win 360 dollars.` **43.** `Hello John Jones` **45.** `$106.00`

47. Prints the words Hello World using a 10-point bold Courier New font in blue letters 2 inches from the left side of the page and 2 inches from the top of the page.

49. The statement `n += 1` is not valid since the value of a constant cannot be changed.

51. The second line should use CDbl to convert the right-hand side to type Double.

53. FormatNumber(123456) is a string and therefore cannot be assigned to a numeric variable.

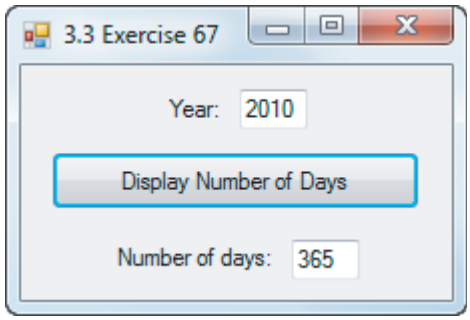
55. You must insert `.Show,` after the word `MessageBox`.

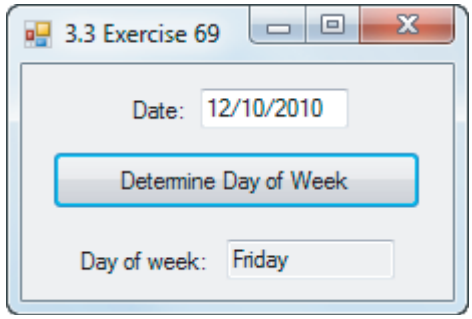
57. `000` **59.** `LLL000` **61.** `0−00−000000−&`

63.
```
MessageBox.Show("First solve the problem. Then write the code.",
                "Good Advice")
```

65.
```
Private Sub btnDisplay_Click(...) Handles btnDisplay.Click
  Dim begOfYearCost, endOfYearCost As Double
  Dim percentIncrease As Double
  begOfYearCost = 200
  endOfYearCost = CDbl(InputBox("Enter cost at the end of the year:"))
  percentIncrease = (endOfYearCost − begOfYearCost) / begOfYearCost
  txtOutput.Text = "The increase in cost for the year is " &
                   FormatPercent(percentIncrease) & "."
End Sub
```

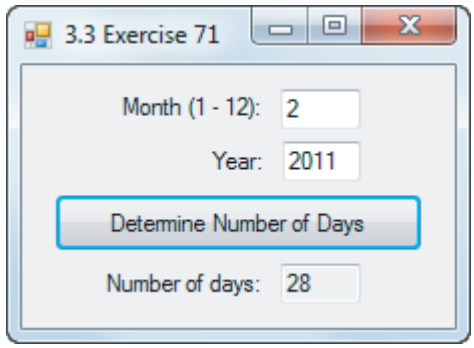
67.
```
Private Sub btnDisplay_Click(...) Handles btnDisplay.Click
  Dim firstDayOfYr, firstDayOfNextYr As Date
  Dim numDays As Double
  firstDayOfYr = CDate("1/1/" & mtbYear.Text)
  firstDayOfNextYr = firstDayOfYr.AddYears(1)
  numDays = DateDiff(DateInterval.Day, firstDayOfYr, firstDayOfNextYr)
  txtNumDays.Text = CStr(numDays)
End Sub
```





69.
```
Private Sub Determine_Click(...) Handles btnDetermine.Click
  Dim dt As Date = CDate(mtbDate.Text)
  Dim fullDate As String = FormatDateTime(dt, DateFormat.LongDate)
  Dim position As Integer = fullDate.IndexOf(",")
  Dim dayOfWeek As String = fullDate.Substring(0, position)
  txtDayOfWeek.Text = dayOfWeek
End Sub
```

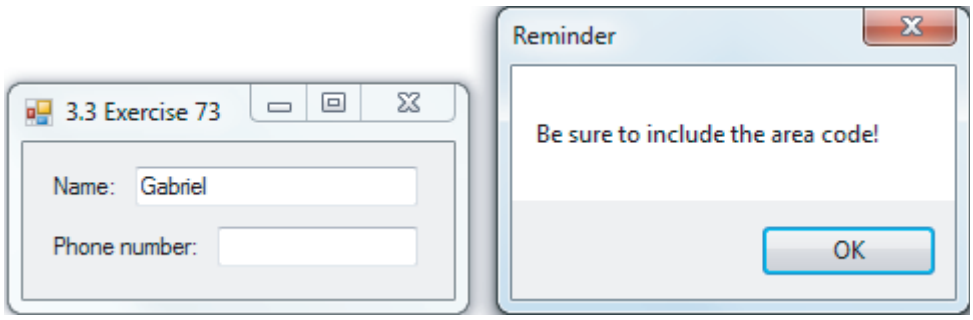
71.
```
Private Sub Determine_Click(...) Handles btnDetermine.Click
  Dim month, yr As Integer   'month given as 1 through 12
  Dim dt, dt2 As Date
  Dim numDays As Double
  month = CInt(txtMonth.Text)
  yr = CInt(mtbYear.Text)
  dt = CDate(month & "/1/" & yr)
  dt2 = dt.AddMonths(1)
  numDays = DateDiff(DateInterval.Day, dt, dt2)
  txtNumDays.Text = CStr(numDays)
End Sub
```



73.
```
Private Sub txtPhoneNumber_Enter(...) Handles txtPhoneNumber.Enter
  MessageBox.Show("Be sure to include the area code!", "Reminder")
End Sub
```

75.
```
Private Sub btnCompute_Click(...) Handles btnCompute.Click
  Dim principal, intRate, yrs, amt As Double
```

```
  lstOutput.Items.Clear()
  principal = CDbl(txtPrincipal.Text)
  intRate = CDbl(txtIntRate.Text)
  yrs = 10
  amt = principal * (1 + intRate) ^ yrs
  lstOutput.Items.Add("When " & FormatCurrency(principal) & " is")
  lstOutput.Items.Add("invested at " & FormatPercent(intRate))
  lstOutput.Items.Add("for " & yrs & " years, the ")
  lstOutput.Items.Add("balance is " & FormatCurrency(amt) & ".")
End Sub
```



77.

```
Const ONE_INCH As Integer = 100     'number of points in an inch
Const LINE_HEIGHT As Integer = 20   'one-quarter of an inch

Private Sub btnPrint_Click(...) Handles btnPrint.Click
  PrintDocument1.Print()
End Sub

Private Sub PrintDocument1_PrintPage(...) Handles PrintDocument1.PrintPage
  Dim gr As Graphics = e.Graphics
  Dim x1 As Integer = ONE_INCH          'use one inch beyond left margin
  Dim x2 As Integer = CInt(1.5 * ONE_INCH)     'offset for second column
  Dim x3 As Integer = CInt(2.25 * ONE_INCH)    'offset for third column
  Dim y As Integer = ONE_INCH           'use one inch top margin
  Dim font1 As New Font("Courier New", 10, FontStyle.Underline)
  Dim font2 As New Font("Courier New", 10, FontStyle.Regular)
  gr.DrawString("% of", font2, Brushes.Black, x3, y)
  y += LINE_HEIGHT
  gr.DrawString("Rank", font1, Brushes.Black, x1, y)
  gr.DrawString("Country", font1, Brushes.Black, x2, y)
  gr.DrawString("WW Users", font1, Brushes.Black, x3, y)
  y += LINE_HEIGHT
  gr.DrawString("1", font2, Brushes.Black, x1, y)
  gr.DrawString("USA", font2, Brushes.Black, x2, y)
  gr.DrawString(FormatPercent(0.16, 1), font2, Brushes.Black, x3, y)
  y += LINE_HEIGHT
  gr.DrawString("2", font2, Brushes.Black, x1, y)
  gr.DrawString("China", font2, Brushes.Black, x2, y)
  gr.DrawString(FormatPercent(0.119, 1), font2, Brushes.Black, x3, y)
  y += LINE_HEIGHT
  gr.DrawString("3", font2, Brushes.Black, x1, y)
  gr.DrawString("Japan", font2, Brushes.Black, x2, y)
  gr.DrawString(FormatPercent(0.065, 1), font2, Brushes.Black, x3, y)
End Sub

Private Sub btnPreview_Click(...) Handles btnPreview.Click
  PrintPreviewDialog1.Document = PrintDocument1
  PrintPreviewDialog1.ShowDialog()
End Sub
```