

start

www.pgrocer.net/Cis17/inclass/loopifplay.html

**In Class Exercise on loops and if statements:**  
These are unrealistic problems, but they help to make sure that you understand the flow of logic and can follow it through to completion.

Problems #1:

```
start
firstNum = 100
secondNum = 5
thirdNum = 12
the Result = 0
do while secondNum <= thirdNum
  if firstNum > 500
    firstNum = firstNum * 2
    secondNum = secondNum +1
  else
    firstNum = firstNum + 100
    thirdNum = thirdNum -1
  end if
end while loop
theResult = firstNum + secondNum + thirdNum
display theResult
end
```

Problem #2:

```
start
firstNum = 25
secondNum = 50
thirdNum = 75
fourthNum = 100
ct = 0
workAns = 0
theAns = 0
do while ct < 6
  workAns = firstNum + secondNum
  if workAns > thirdNum
    fourthNum = fourthNum / 2
    firstNum = firstNum * 3
```

Programming

- sequence
- decision if
- repetition-loops

It looks like you haven't started Firefox in a while. Do you want to clean it up for a fresh, like-new experience? And by the way, welcome back!

Refresh Firefox...

11:05 AM  
2/16/2017

start

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  the Result = 0
  do while secondNum <= thirdNum
    if firstNum > 500
      firstNum = firstNum * 2
      secondNum = secondNum +1
    else
      firstNum = firstNum + 100
      thirdNum = thirdNum -1
    end if
  end while loop
  theResult = firstNum + secondNum + thirdNum
  display theResult
end
```

100  
first Num

Variable type  
size

Problem #2:

```
start
  firstNum = 25
  secondNum = 50
  thirdNum = 75
  fourthNum = 100
  ct = 0
  workAns = 0
  theAns = 0
  do while ct < 6
    workAns = firstNum + secondNum
    if workAns > thirdNum
      fourthNum = fourthNum / 2
      firstNum = firstNum * 3
    end if
    ct = ct + 1
  end while
  display theAns
end
```

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      firstNum = firstNum * 2
      secondNum = secondNum +1
    else
      firstNum = firstNum + 100
      thirdNum = thirdNum -1
    end if
  end while loop
  theResult = firstNum + secondNum + thirdNum
  display theResult
end
  
```

*Handwritten notes:*  
 Initializing housekeeping (bracketed next to firstNum, secondNum, thirdNum, the Result = 0)  
 body processing (bracketed next to the while loop body)  
 ending wrap up (bracketed next to theResult = ... and display theResult)

First Num  
100

second Num  
5

third Num  
12

**Problem #2:**

```

start
  firstNum = 25
  secondNum = 50
  thirdNum = 75
  fourthNum = 100
  ct = 0
  workAns = 0
  theAns = 0
  do while ct < 6
    workAns = firstNum + secondNum
    if workAns > thirdNum
      fourthNum = fourthNum / 2
      firstNum = firstNum * 3
    end if
  end while
  
```

The Result  
0

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      firstNum = firstNum * 2
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    else
      firstNum = firstNum + 100
      thirdNum = thirdNum - 1
    end if
  end while loop
  theResult = firstNum + secondNum + thirdNum
  display theResult
end
  
```

First Num      second Num      third Num

~~100~~      ~~5~~      ~~12~~  
 200      6      11  
 300      7      10  
 400      8      9  
 500           8  
 600           7  
 1200           6  
 2400           5  
 4800           4

assignment sign

The Result  
~~0~~  
 4915

loop  
 - set control  
 - check  
 - change control

**Problem #2:**

```

start
  firstNum = 25
  secondNum = 50
  thirdNum = 75
  fourthNum = 100
  ct = 0
  workAns = 0
  theAns = 0
  do while ct < 6
    workAns = firstNum + secondNum
    if workAns > thirdNum
      fourthNum = fourthNum / 2
      firstNum = firstNum * 3
    end if
  end while
end
  
```

start

```

firstNum = firstNum + 100
thirdNum = thirdNum - 1
end if
end while loop
theResult = firstNum + secondNum + thirdNum
display theResult
end

```

Problem #2:

```

start
firstNum = 25
secondNum = 50
thirdNum = 75
fourthNum = 100
ct = 0
workAns = 0
theAns = 0
do while ct < 6
  workAns = firstNum + secondNum
  if workAns > thirdNum
    fourthNum = fourthNum / 2
    firstNum = firstNum * 3
    secondNum = firstNum - secondNum
    thirdNum = thirdNum * 2
  else
    firstNum = firstNum + 10
    secondNum = secondNum + 10
    thirdNum = thirdNum + 10
  end if
  ct = ct + 1
end do
theAns = firstNum + secondNum * thirdNum + fourthNum
display theAns
end

```

Handwritten calculations and annotations:

First Num

25	405
<del>35</del>	
105	
<del>115</del>	
125	
<del>135</del>	

Second Num

50	330
<del>60</del>	
45	
<del>55</del>	
65	
<del>75</del>	

Third Num

75	400
<del>85</del>	
170	
<del>180</del>	
190	
<del>200</del>	

Fourth Num

100
<del>50</del>
25

ct

<del>0</del>
1
<del>2</del>
3
<del>4</del>
5

workAns

<del>0</del>
75
<del>95</del>
150
<del>170</del>
190
<del>210</del>

the Ans

<del>0</del>
132430

Additional handwritten calculations:

$$\begin{array}{r} 330 \\ \times 400 \\ \hline 132000 \\ 405 \\ 25 \\ \hline 132430 \end{array}$$

File Tools View ifexampleS10-1 (Protected View) - Word

**PROTECTED VIEW** Be careful—files from the Internet can contain viruses. Unless you need to edit, it's safer to stay in Protected View. [Enable Editing](#)

Practice exercise:

Payroll file: (each record is payRecord)

idno	name	payHr	regHrs	ovtHrs
1111	John Doe	20	40	10
1234	Ann Costa	25	40	0
2222	Linda Ryan	30	40	20
2345	Bob Smith	30	35	10
EOF				

```
start
  read payRecord
  do while not endOfFile
    if ovtHrs > 0
      regPay = payHr * regHrs
      ovtPay = payHr * ovtHrs * 1.5
      totPay = regPay + ovtPay
    else
      totPay = payHr * regHrs
    end if
    display totPay
    read payRecord
  end do while loop
stop program
```

*Structure records*

*end of file*

Page 1 of 1

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      totPay = regPay + ovtPay
    else
      totPay = payHr * regHrs
    end if
    display totPay
  read payRecord
  end do while loop
stop program

```

1100  
1000  
2100  
1500

reg Pay  
800  
1200  
1050

ovt Pay  
300  
900  
450

tot Pay  
1100  
1000  
2100  
1500

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Payroll file: (each record is payRecord)

idno	name	payHr	regHrs	ovtHrs
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      totPay = regPay + ovtPay
    else
      totPay = payHr * regHrs
    end if
    display totPay
  read payRecord
  end do while loop
stop program

```

1100  
1000  
2100  
1500

reg Pay  
~~800~~  
~~1000~~  
1050

Out Pay  
~~300~~  
~~900~~  
450

Tot Pay  
~~1100~~  
~~1000~~  
~~2100~~  
1500



File Tools View alogicasgnF12-1 (Protected View) - Word

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## Logic Assignment

**I want you to play computer. Step through these problems and determine the result.**

<pre>start var1 = 10 var2 = 20 wksum = 0 rslt = 0 do while var2 &lt; 30   wksum = var1 + var2   if wksum &gt; 30     var1 = var1 - 2     var2 = var2 + 1   else     var1 = var1 - 1     var2 = var2 + 3   end if end while loop rslt = var1 + var2 display rslt end</pre>	<p><b>Problem #1: When the pseudocode displays rslt, what number will rslt be?</b></p> <ol style="list-style-type: none"><li>1. rslt = 28</li><li>2. rslt = 29</li><li>3. rslt = 30</li><li>4. rslt = 31</li><li>5. rslt = 32</li></ol>
<pre>start var1 = 10 var2 = 20 wksum = 0 rslt = 0 do until var2 &gt; 30   wksum = var1 + var2   if wksum &gt; 30</pre>	<p><b>Problem #2: When the pseudocode displays rslt, what number will rslt be?</b></p> <ol style="list-style-type: none"><li>1. rslt = 28</li><li>2. rslt = 29</li><li>3. rslt = 30</li><li>4. rslt = 31</li></ol>

100%

12:11 PM  
2/16/2017