

Fill in the red cells in the table below based on the information in Assignment 1.  
All values should be in *nominal* terms.

$r = 8.00\%$   
 $i = 1.00\%$   
 real growth rate of withdrawals =  $3\%$   
 nominal growth rate of withdrawals =  $4.03\%$  <-- enter formula  $g = (1+g_r)(1+i) - 1$

| Period t = | Deposits  | PV(Deposit) | Withdrawals | PV(Withdrawal) | Account balance<br>before<br>deposit/withdrawal | Account balance after<br>deposit/withdrawal |
|------------|-----------|-------------|-------------|----------------|---|---|
| 0          | 0.00      | 0.00        | 0.00        | 0.00           | 0.00  | 0.00  |
| 1          | 0.00      | 0.00        | 0.00        | 0.00           | 0.00  | 0.00  |
| 2          | 0.00      | 0.00        | 0.00        | 0.00           | 0.00  | 0.00  |
| 3          | 0.00      | 0.00        | 0.00        | 0.00           | 0.00  | 0.00  |
| 4          | 0.00      | 0.00        | 0.00        | 0.00           | 0.00  | 0.00  |
| 5          | 0.00      | 0.00        | 0.00        | 0.00           | 0.00  | 0.00  |
| 6          | 0.00      | 0.00        | 0.00        | 0.00           | 0.00  | 0.00  |
| 7          | 0.00      | 0.00        | 0.00        | 0.00           | 0.00  | 0.00  |
| 8          | 0.00      | 0.00        | 0.00        | 0.00           | 0.00  | 0.00  |
| 9          | 0.00      | 0.00        | 0.00        | 0.00           | 0.00  | 0.00  |
| 10         | 14,000.00 | 6,484.71    | 0.00        | 0.00           | 0.00  | 14,000.00                                   |
| 11         | 14,700.00 | 6,304.58    | 0.00        | 0.00           | 15,120.00                                       | 29,820.00                                   |
| 12         | 15,435.00 | 6,129.45    | 0.00        | 0.00           | 32,205.60                                       | 47,640.60                                   |
| 13         | 16,206.75 | 5,959.19    | 0.00        | 0.00           | 51,451.85                                       | 67,658.60                                   |
| 14         | 17,017.09 | 5,793.66    | 0.00        | 0.00           | 73,071.29                                       | 90,088.37                                   |
| 15         | 17,867.94 | 5,632.72    | 0.00        | 0.00           | 97,295.44                                       | 115,163.39                                  |
| 16         | 18,761.34 | 5,476.26    | 0.00        | 0.00           | 124,376.46                                      | 143,137.79                                  |
| 17         | 20,074.63 | 5,425.55    | 0.00        | 0.00           | 154,588.82                                      | 174,663.45                                  |
| 18         | 21,479.86 | 5,375.31    | 0.00        | 0.00           | 188,636.53                                      | 210,116.38                                  |
| 19         | 22,983.45 | 5,325.54    | 0.00        | 0.00           | 226,925.69                                      | 249,909.14                                  |
| 20         | 24,592.29 | 5,276.23    | 0.00        | 0.00           | 269,901.87                                      | 294,494.16                                  |
| 21         | 0.00      | 0.00        | 0.00        | 0.00           | 318,053.69                                      | 318,053.69                                  |
| 22         | 0.00      | 0.00        | 0.00        | 0.00           | 343,497.99                                      | 343,497.99                                  |
| 23         | 0.00      | 0.00        | 0.00        | 0.00           | 370,977.83                                      | 370,977.83                                  |
| 24         | 0.00      | 0.00        | 0.00        | 0.00           | 400,656.06                                      | 400,656.06                                  |
| 25         | 0.00      | 0.00        | 0.00        | 0.00           | 432,708.54                                      | 432,708.54                                  |
| 26         | 0.00      | 0.00        | 5,181.03    | 700.48         | 467,325.22                                      | 462,144.20                                  |
| 27         | 0.00      | 0.00        | 5,389.82    | 674.73         | 499,115.73                                      | 493,725.91                                  |
| 28         | 0.00      | 0.00        | 5,607.03    | 649.93         | 533,223.99                                      | 527,616.96                                  |
| 29         | 0.00      | 0.00        | 5,832.99    | 626.04         | 569,826.31                                      | 563,993.32                                  |
| 30         | 0.00      | 0.00        | 6,068.06    | 603.03         | 609,112.78                                      | 603,044.72                                  |
| 31         | 0.00      | 0.00        | 6,312.61    | 580.86         | 651,288.30                                      | 644,975.69                                  |
| 32         | 0.00      | 0.00        | 6,567.00    | 559.51         | 696,573.75                                      | 690,006.74                                  |
| 33         | 0.00      | 0.00        | 6,831.65    | 538.94         | 745,207.28                                      | 738,375.63                                  |
| 34         | 0.00      | 0.00        | 7,106.97    | 519.13         | 797,445.68                                      | 790,338.71                                  |
| 35         | 0.00      | 0.00        | 7,393.38    | 500.05         | 853,565.80                                      | 846,172.42                                  |
| 36         | 0.00      | 0.00        | 7,691.33    | 481.67         | 913,866.22                                      | 906,174.88                                  |
| 37         | 0.00      | 0.00        | 8,001.30    | 463.96         | 978,668.87                                      | 970,667.58                                  |
| 38         | 0.00      | 0.00        | 8,323.75    | 446.91         | 1,048,320.99                                    | 1,039,997.24                                |
| 39         | 0.00      | 0.00        | 8,659.19    | 430.48         | 1,123,197.02                                    | 1,114,537.82                                |
| 40         | 0.00      | 0.00        | 9,008.16    | 414.65         | 1,203,700.85                                    | 1,194,692.69                                |
| 41         | 0.00      | 0.00        | 9,371.19    | 399.41         | 1,290,268.10                                    | 1,280,896.91                                |
| 42         | 0.00      | 0.00        | 9,748.85    | 384.73         | 1,383,368.67                                    | 1,373,619.82                                |
| 43         | 0.00      | 0.00        | 10,141.73   | 370.59         | 1,483,509.41                                    | 1,473,367.68                                |
| 44         | 0.00      | 0.00        | 10,550.44   | 356.96         | 1,591,237.09                                    | 1,580,686.66                                |
| 45         | 0.00      | 0.00        | 10,975.62   | 343.84         | 1,707,141.59                                    | 1,696,165.97                                |
| 46         | 0.00      | 0.00        | 0.00        | 0.00           | 1,831,859.25                                    | 1,831,859.25                                |
| 47         | 0.00      | 0.00        | 0.00        | 0.00           | 1,978,407.98                                    | 1,978,407.98                                |
| 48         | 0.00      | 0.00        | 0.00        | 0.00           | 2,136,680.62                                    | 2,136,680.62                                |
| 49         | 0.00      | 0.00        | 0.00        | 0.00           | 2,307,615.07                                    | 2,307,615.07                                |
| 50         | 0.00      | 0.00        | 0.00        | 0.00           | 2,492,224.28                                    | 2,492,224.28                                |

<--- this final balance should be your answer to a and b

PV(all deposits) --> **63,183.19**  
 (sum of column C)

PV(all withdrawals) --> **10,045.91**  
 PV(final balance) --> **53,137.28**  
 sum **63,183.19**

<-- (sum of column E)

Note that PV(all deposits) should equal PV(all withdrawals) + PV(final balance)