Problem

Write a program that asks the user for the following
Input: 1) number of hours worked in a week
       2) number of dependents

and generates the following

Output: 1) worker’s gross pay
        2) withholding amounts
               a) Social Security at 6% of gross pay
               b) Federal income tax at 14% of gross pay
               c) State income tax at 5% of gross pay
               d) Union dues = $10 per week
               e) if worker has three or more independents, $35 withheld to cover extra cost of
                  health insurance beyond what the employer pays
        3) net take-home pay

Given

Employee’s salary rate = $16.78 per hour
Gross Pay for 40 hours = 40 * 16.78
Gross Pay for over 40 hours worked = 40 * 16.78 + (hrs over 40) * 1.5 * 16.78
Dollar amt of tax = tax rate * gross pay
Net pay = gross pay – all withholding amounts

Solution

Let GP = gross pay       NP = net pay       SS = amount of Social Security tax
FT = amount of Federal Income tax  ST = amount of state income tax
UD = amount of union dues       HRS = hours worked       DEP = # of dependents

If HRS <= 40               GP = 16.78 * HRS
If HRS > 40               GP = 16.78 * 40 + (HRS - 40) * 1.5 * 16.78
SS = 0.06 * GP
FT = 0.14 * GP
ST = 0.05 * GP

If DEP < 3         NP = GP – (SS + FT + ST +10)
If DEP >= 3        NP = GP – (SS + FT + ST +10 + 35)

Baseline Data

<table>
<thead>
<tr>
<th>Hours Worked</th>
<th>Dependents</th>
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</thead>
<tbody>
<tr>
<td>40</td>
<td>0</td>
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<tr>
<td>45</td>
<td>0</td>
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<tr>
<td>40</td>
<td>3</td>
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</tbody>
</table>
Algorithm
Get input values for HRS = hours worked and DEP = # of dependents

Calculate GP = gross pay
If HRS \leq 40 \quad GP = 16.78 \times HRS
If HRS > 40 \quad GP = 16.78 \times 40 + (HRS - 40) \times 1.5 \times 16.78

SS = 0.06 \times GP
FT = 0.14 \times GP
ST = 0.05 \times GP

Calculate Net Pay
If DEP < 3 \quad NP = GP - (SS + FT + ST + 10)
If DEP \geq 3 \quad NP = GP - (SS + FT + ST + 10 + 35)

Display output
1) worker’s gross pay = GP
2) withholding amounts
   a) Social Security at 6% of gross pay = SS
   b) Federal income tax at 14% of gross pay = FT
   c) State income tax at 5% of gross pay = ST
   d) Union dues = $10 per week
   e) if worker has three or more independents,
      $35 withheld to cover extra cost of health insurance beyond what the employer
      pays
Else
No output
3) net take-home pay = NP

Baseline Analysis

Baseline Data

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</tr>
</tbody>
</table>

Case 1
HRS = 40 \quad DEP = 0

Calculate GP = gross pay
HRS \leq 40 \quad GP = 16.78 \times 40 = $671.20

SS = 0.06 \times 671.20 = $40.27
FT = 0.14 \times 671.20 = $93.97
ST = 0.05 \times 671.20 = $33.56
Calculate Net Pay

Case 2
HRS = 45  DEP = 0

Calculate GP = gross pay
HRS > 40 so  GP = 16.78 * 40 + (45 − 40) * 1.5 * 16.78 = 671.20 + 125.85 = $797.05

SS = 0.06 * 797.05 = $47.82
FT = 0.14 * 797.05 = $111.59
ST = 0.05 * 797.05 = $39.85

Calculate Net Pay
DEP < 3 so NP = 797.05 − (47.82 + 111.59 + 39.85 + 10) = 797.05 − 209.26 = $587.79

Case 3
HRS = 40  DEP = 3

Calculate GP = gross pay
HRS ≤ 40 so  GP = 16.78 * 40 = $671.20

SS = 0.06 * 671.20 = $40.27
FT = 0.14 * 671.20 = $93.97
ST = 0.05 * 671.20 = $33.56

Calculate Net Pay
DEP ≥ 3 so NP = 671.20 − (40.27 + 93.97 + 33.56 + 10 + 35) = 671.20 − 212.80 = $458.40

Case 4
HRS = 45  DEP = 3

Calculate GP = gross pay
HRS > 40 so  GP = 16.78 * 40 + (45 − 40) * 1.5 * 16.78 = 671.20 + 125.85 = $797.05

SS = 0.06 * 797.05 = $47.82
FT = 0.14 * 797.05 = $111.59
ST = 0.05 * 797.05 = $39.85

Calculate Net Pay
DEP ≥ 3 so NP = 797.05 − (47.82 + 111.59 + 39.85 + 10 + 35) = 797.05 − 244.26 = $552.79