1) Percent Change

\[
\text{Old} = \$3,350 \\
\% \text{ CH} = 85\% \\
\text{New} = \$43,850 \\
\% \text{ CH} = -74\%
\]

2) Percent Change

\[
\text{Old} = ? \quad \text{18,108} \\
\text{New} = ? \quad \text{50,99}
\]

3) Annual Percent Change

\[
\text{Old} = \$92,000 \\
\text{New} = \$220,000 \\
\# \text{PD} = 2014-2006 = 14 \\
\% \text{ CH} = 64.43\%
\]

4) Payroll

Weekly = 52 Pay Periods

\[
\frac{\$75,000}{52} = \frac{\$1442.31}{\text{week}} \\
\frac{\$36.06}{40} = \frac{\$54.09}{\text{hour}} \\
\frac{\$36.06 \times 1.5}{40} = \frac{\$54.09}{\text{overtime hour}} \\
45-40 = 5 \text{ overtime hours} \\
5 \times \$54.09 = \$270.45 \text{ overtime pay} \\
\$1442.31 + \$270.45 = \$1712.76
\]

5) Payroll - Commission

Total Sales = \$3500

First \: \$1500 \times 4\% = \$60 \\
Second \: \$1500 \times 6\% = \$90 \\
Over \$3000 \: \$500 \times 9\% = \$45

\$195
6) Payroll

$48 - 40 = 8 \text{ overtime hours} \quad 8 \times 1.5 = 12 \text{ hours without overtime}

12 + 40 = 52 \text{ hours without overtime pay}

\frac{\$850.20}{52} = \$16.35/\text{hour}

7) Index

\frac{\$3.99 \times 100}{\$1.50} = 26.6

8) Index

\frac{105.6}{100} \times 100 = 109.2 \times \frac{\$1000}{105.6}

\text{Beginning} = \text{End}

\frac{105.6}{105.6} \times \frac{\$1000}{105.6} = \$1034.09

9) \( N = L \left( 1 - d \right) \) Purchasing Goods - Net Price

\begin{align*}
L &= \$450 \\
\text{d} &= 25\% = 0.25 \\
\text{N} &= \$450 \left( 1 - 0.25 \right) \\
\text{N} &= \$337.50
\end{align*}

10) Single Equivalent Rate of Discount

\[ 1 - \left( \left( 1 - d_1 \right) \left( 1 - d_2 \right) \left( 1 - d_3 \right) \right) \]

\begin{align*}
d_1 &= 15\% \quad d_2 = 7.5\% \quad d_3 = 5\% \\
1 - \left[ \left( 1 - 0.15 \right) \left( 1 - 0.075 \right) \left( 1 - 0.05 \right) \right] \\
1 - \left[ \left( 0.85 \right) \left( 0.925 \right) \left( 0.95 \right) \right] \\
1 - 0.7469375 = 0.2530625 \times 100 = 25.31\%
\end{align*}
11) Purchasing Goods - List
   \[ \text{L} = \left( 1 - \frac{d_1}{100} \right) \left( 1 - \frac{d_2}{100} \right) \text{N} \]
   \[ \text{N} = \$275.75 \]
   \[ d_1 = 20\% = 0.20 \]
   \[ d_2 = 10\% = 0.10 \]
   \[ \text{L} = \left( 1 - 0.20 \right) \left( 1 - 0.10 \right) \times \$275.75 \]
   \[ \text{L} = \$382.99 \]

12) Purchasing Goods - Rate of Discount
   \[ \text{L} = \frac{N - d}{N} \times 100 \]
   \[ N = \$451.75 \]
   \[ d = 7 \]
   \[ \text{L} = \frac{\$451.75 - \$695}{\$451.75} \times 100 \]
   \[ \text{L} = 35\% \]

13) Purchasing Goods - List Price
   \[ d = 32.5\% = 0.325 \]
   \[ \text{L} = \frac{D - \$47.58}{0.325} \]
   \[ \text{L} = \$243.25 \]

14) Purchasing Goods - Net Price
   \[ \text{L} = \$146.40 \]
   \[ N = \text{L} - D \]
   \[ D = \$47.58 \]
   \[ \text{N} = \$146.40 - \$47.58 \]
   \[ \text{N} = \$98.82 \]

15) Purchasing Goods and Markup
   \[ \text{L} = \$45 \]
   \[ \text{N} = \text{L} \left( 1 - d \right) \]
   \[ d = 22\% \]
   \[ \text{N} = \$45 \left( 1 - 0.22 \right) \]
   \[ \text{N} = \$45 \left( 0.78 \right) = \$35.10 \]
   \[ \text{M} = 34\% \]
   \[ \text{Cost} = 0.34 \times \$35.10 = \$11.94 \]
15) \( s = c + M \)
\( s = \$35,10 + \$11,793 \)
\( s = \$47,193 \)

16) Purchasing Goods and Rate of Markup on Selling Price

\( L = \$145 \)
\( d_1 = 15\% = 0.15 \)
\( N = \frac{L}{1-d_1} (1-d_2) \)
\( d_2 = 10\% = 0.10 \)
\( N = \$145 \left(1-0.15\right) \left(1-0.10\right) \)
\( N = \$145 \left(0.85\right) \left(0.90\right) \)
\( N = \$110.93 \)
\( N \) becomes \( C \)

\( C = \$110.93 \)
\( M = s - C \)
\( s = \$175 \)
\( M = \$175 - \$110.93 \)
\( M = \$64.07 \)

Rate of Markup on selling price = \( \frac{M \times 100}{s} \)
\( \frac{\$64.07 \times 100}{\$175} = 36.61\% \)

17) Purchasing Goods and Markup - Expenses and Profit

\( L = \$129.99 \)
\( d = 27.3\% = 0.273 \)
\( N = \frac{L}{1-d} \)
\( N = \$129.99 \left(1-0.273\right) \)
\( N = \$129.99 \left(0.727\right) \)
\( N = \$94.50 \)
\( N \) becomes \( C \)

\( C = \$94.50 \)
\( E = 20\% \) of cost = 0.20 \( \times \) \$94.50 = \$18.90
\( F = 25\% \) of cost = 0.25 \( \times \) \$94.50 = \$23.63

\( S = C + E + F \)
\( S = \$94.50 + \$18.90 + \$23.63 = \$137.03 \)
18) Markup and Break even

S = ?
C = $173.18
E = 27% of C = 0.275
P = 18% of C = 0.18 × $173.18

\[ S = C + E + P \]
\[ S = 173.18 + 0.275 \times 173.18 \]
\[ S = 173.18 + 47.15 \]
\[ S = 220.33 \]

\[ 15 = 220.35 - 0.275 \]
\[ 0.73 = 0.275 \]
\[ 0.73 \times 173.18 \]
\[ S = 220.33 \]

BE = C + E
BE = S - P = $229.93 - $3.17 = $226.76

19) Markdown

N = ?
L = $49.50
D = 40% = 0.40

\[ N = LC(1 - d) \]
\[ N = 49.50(1 - 0.40) \]
\[ N = 49.50 \times 0.60 \]
\[ N = $29.70 \]

20) Rate of Markdown = \( \frac{S - SR}{S} \times 100 \)

\[ S = $999.95 \]
\[ SR = $499.95 \]
\[ \frac{999.95 - 499.95}{999.95} \times 100 = 5\% \]

21) Sales Taxes

Price = $399
GST = $399 × 5% = $19.95
PST = $399 × 8% = $31.92
GST = 5%
PST = 8%

\[ $399 + $19.95 + $31.92 = $450.87 \]
Chapter 1, 2, 3, 4

Answer Key by Michael Reimer

22) Tax Remittance or Refund

Purch $56,780
Sales $80,225
$56,780 - $80,225 = $-23445 \times 5\% = $-1172.25 Remittance

23) Property Tax

$750,000 \times 5.3476 = $4010.70

24) Currency Exchange

Canadian to Euro

\[
1.4056 \times \frac{7}{2000} = \frac{9839}{2000}
\]

1.4056 \times 2000 = \frac{2811.20}{x}

Bank Fee = $2811.20 \times 0.02 = $56.22

Total = $2811.20 + $56.22 = $2867.42

25) Payment in Discount Period

August 10 -> September 9

Days used for August = 31 - 10 = 21 days
Days used for September = 9

Total Days = 21 + 9 = 30 we get a 2% discount

\[
N = \frac{L}{(1 - d)}
\]

\[
L = \frac{1000}{1.40}
\]

\[
N = \frac{1000 \times (1 - 0.02)}{1.40}
\]

\[
N = \frac{1000 \times (1 - 0.98)}{1.40}
\]

$627.20
26) Partial Payment in Discount Period
   November 13 - November 23 = 10 days
   we get a 4% discount

   \[ N = 1.04 \]
   \[ L = \text{Amount Credited} \]
   \[ N = \frac{111}{0.96} \]
   \[ N = 9.36 \]

27) Partial Payment in Discount Period
   October 12 - October 22 = 10 days
   \[ d = 4\% = 0.04 \]
   \[ L = \frac{2000}{0.96} \]
   \[ L = 2083.33 \]

28) Payment with Discount Period beginning at the End of Month
    August 31 - July 31 - August 10 = 10 days
    we get a 2% discount

    \[ d = 2\% = 0.02 \]
    \[ N = \frac{1}{0.98} \]
    \[ N = 441 \]
29) Currency Exchange

\[
\frac{\text{Canadian}}{\text{US}} \times 1.056 \times 450 = x
\]

\[
x = $475.47
\]

Bank Fee = $475.47 \times 1.5\% = $7.13

Total Received = $475.47 - $7.13 = $468.34