CHAPTER 1

Earning and managing money

Syllabus topic — FM1 Earning and managing money

- Calculate payments from a salary
- Calculate wages using hourly rate, overtime rates and allowances
- Calculate annual leave loading and bonuses
- Calculate earnings based on commission, piecework and royalties
- Determine deductions and calculate net pay
- Evaluate a prepared budget

1.1 Salary and wages

Salary

Salary is a payment for a year’s work which is then divided into equal monthly, fortnightly or weekly payments. People who are paid a salary include teachers and nurses.

**Advantages**
- Permanent employment
- Superannuation, sick and holiday pay

**Disadvantages**
- No overtime for extra work
- Hours are fixed

<table>
<thead>
<tr>
<th>Converting salary to weeks, fortnights and months</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 year = 52 weeks</td>
</tr>
</tbody>
</table>

**Example 1** Calculating from a salary

Mitchell earns a salary of $65,208 per annum. He is paid fortnightly. How much does he receive each fortnight? Assume there are 52 weeks in the year.
Solution
1 Write the quantity to be found.
2 Divide the salary by the number of fortnights in a year or 26.
3 Evaluate and write using correct units.
4 Write your answer in words.

Fortnightly pay = \( \frac{65\,208}{26} \) = $2508.00
Mitchell is paid $2508 per fortnight.

Wages
Wage is a payment for work calculated on an hourly basis. People who are paid a wage include shop assistants, factory workers and mechanics.

Advantages
• Permanent employment
• Superannuation, sick and holiday pay
• Overtime payments for extra work

Disadvantages
• No incentive to work hard each hour
• Hours are fixed

Example 2 Calculating a wage
Jasmine is paid at a rate of $1098 for a 40-hour week.

a How much does Jasmine earn per hour?
b What wages will Jasmine receive for a week where she works 38 hours?

Solution
1 Write the quantity to be found.
2 Divide the amount by the number of hours worked.
3 Evaluate and give answer correct to two decimal places.
4 Write the quantity to be found.
5 Multiply the rate by the number of hours worked.
6 Evaluate and write using correct units.
7 Write your answer in words.

a Wage per hour = \( \frac{1098}{40} \) = $27.45
Jasmine earns $27.45 per hour.
b Wage for 38 hours = \( 27.45 \times 38 \) = $1043.10
Jasmine receives $1043.10 for the week.

<table>
<thead>
<tr>
<th>Salary</th>
<th>Wage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A payment for a year’s work, which is then divided into equal monthly, fortnightly or weekly payments.</td>
<td>A payment for a week’s work and is calculated on an hourly basis.</td>
</tr>
</tbody>
</table>
Chapter 1 — Earning and managing money

Exercise 1A

1 Emily earns a salary of $92,648. Write, to the nearest dollar, her salary as amounts per:
   a week.
   b fortnight.
   c month.

2 The annual salary for 4 people is shown in the table below. Calculate their weekly and fortnightly payments. (Answer correct to the nearest dollar.)

<table>
<thead>
<tr>
<th>Name</th>
<th>Salary</th>
<th>Week</th>
<th>Fortnight</th>
</tr>
</thead>
<tbody>
<tr>
<td>a Abbey</td>
<td>$57,640</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b Blake</td>
<td>$78,484</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c Chloe</td>
<td>$107,800</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d David</td>
<td>$44,240</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3 What is Zachary’s fortnightly income if he earns a salary of $43,056?

4 Find the annual salary for the following people.
   a Amber earns $580 per week.
   b Tyler earns $1,520 per fortnight.
   c Samuel earns $3,268 per month.
   d Ava earns $2,418 per week.

5 Harrison is a civil engineer and who earns a salary of $1,500 per week.
   a How much does he receive per fortnight?
   b How much does he receive per year?

6 What is Yasmeen’s annual salary if her salary per fortnight is $1,610?

7 Dylan receives a weekly salary payment of $1,560. What is his annual salary?

8 Stephanie is paid $1,898 per fortnight and Tahlia $3,821 per month. Calculate each person’s equivalent annual income. Who earns the most per week and by how much?

9 Laura is paid $1,235 per fortnight and Ebony $2,459 per month. Which person receives the highest annual salary and by how much?

10 Tran is paid $1,898 per week and Jake $8,330 per month. Calculate each person’s equivalent annual income. What is the difference between their annual salaries?
11 Joshua works as a labourer and is paid $25.50 an hour. How much does he earn for working the following hours?
   a  35 hours  
   b  37 hours  
   c  40 hours  
   d  42 hours

12 Lily earns $29.75 an hour. If she works 6 hours each day during the week and 4 hours a day during the weekend, find her weekly wage.

13 Determine the wage for a 37-hour week for each of the following hourly rates.
   a  $12.00  
   b  $9.50  
   c  $23.20  
   d  $13.83

14 Determine the income for a year (52 weeks) for each of the following hourly rates.
   Assume 40 hours of work per week.
   a  $7.59  
   b  $15.25  
   c  $18.78  
   d  $11.89

15 Suchitra works at the local supermarket. She gets paid $22.50 per hour. Her time card is shown below.

<table>
<thead>
<tr>
<th>Day</th>
<th>In</th>
<th>Out</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>9.00 a.m.</td>
<td>5.00 p.m.</td>
</tr>
<tr>
<td>Tuesday</td>
<td>9.00 a.m.</td>
<td>6.00 p.m.</td>
</tr>
<tr>
<td>Wednesday</td>
<td>8.30 a.m.</td>
<td>5.30 p.m.</td>
</tr>
<tr>
<td>Thursday</td>
<td>9.00 a.m.</td>
<td>4.30 p.m.</td>
</tr>
<tr>
<td>Friday</td>
<td>9.00 a.m.</td>
<td>4.00 p.m.</td>
</tr>
</tbody>
</table>

   a  How many hours did Suchitra work this week?  
   b  Find her weekly wage.

16 Grace earns $525 in a week. If her hourly rate of pay is $12.50, how many hours does she work in the week?

17 Zachary is a plumber who earned $477 for a day’s work. He is paid $53 per hour. How many hours did Zachary work on this day?

18 Lucy is a hairdresser who earns $24.20 per hour. She works an 8-hour day.
   a  How much does Lucy earn per day?  
   b  How much does Lucy earn per week? Assume she works 5 days a week.  
   c  How much does Lucy earn per fortnight?  
   d  How much does Lucy earn per year? Assume 52 weeks in the year.

19 Alyssa is paid $36.90 per hour and Connor $320 per day. Alyssa works a 9-hour day. Who earns the most per day and by how much?
Development

20 Feng is retiring and will receive 7.6 times the average of his salary over the past three years. In the past three years he was paid $84,640, $83,248 and $82,960. Find the amount of his payout.

21 Liam’s salary is currently $76,000. He will receive salary increases as follows: 5% increase from 1 July and then a 5% increase from 1 January. What will be his new salary from 1 January?

22 Create the spreadsheet below.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mathematics General Preliminary</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Worksheet to calculate wages of employees</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Family name</td>
<td>First name</td>
<td>Hours worked</td>
<td>Hourly pay rate</td>
</tr>
<tr>
<td>5</td>
<td>Cini</td>
<td>Olivia</td>
<td>35</td>
<td>$15.00</td>
</tr>
<tr>
<td>6</td>
<td>Croft</td>
<td>Liam</td>
<td></td>
<td>$20.00</td>
</tr>
<tr>
<td>7</td>
<td>Griffen</td>
<td>Lily</td>
<td></td>
<td>$30.00</td>
</tr>
<tr>
<td>8</td>
<td>Hong</td>
<td>Tin</td>
<td></td>
<td>$26.00</td>
</tr>
<tr>
<td>9</td>
<td>Lang</td>
<td>Molly</td>
<td></td>
<td>$33.00</td>
</tr>
<tr>
<td>10</td>
<td>Sitou</td>
<td>Noth</td>
<td></td>
<td>$23.00</td>
</tr>
<tr>
<td>11</td>
<td>Taylor</td>
<td>Nathan</td>
<td></td>
<td>$26.00</td>
</tr>
<tr>
<td>12</td>
<td>Woods</td>
<td>Joshua</td>
<td></td>
<td>$15.00</td>
</tr>
</tbody>
</table>

   a   Cell E5 has a formula that multiplies cells C5 to D5. Enter this formula.
   b   Enter the hours worked for the following employees:
         Liam – 20
         Lily – 26
         Tin – 38
         Molly – 40
         Noth – 37.5
         Nathan – 42
         Joshua – 38.5
   c   Fill down the contents of E5 to E12.
   d   Edit the hourly pay rate of Olivia Cini to $16.50. Observe the change in E5.

23 Isabelle earns $85,324 per annum. Isabelle calculated her weekly salary by dividing her annual salary by 12 to determine her monthly payment and then divided this result by 4 to determine her weekly payment. What answer did Isabelle get, what is the correct answer, and what is wrong with Isabelle’s calculation?

24 Lucy earns $8 per hour and Ebony earns $9 per hour. Last week they both earned at least $150. What is the least number of hours that Lucy could have worked last week?
1.2 Overtime and special allowances

Overtime

Overtime rates apply when employees work beyond the normal working day. Payment for overtime is usually more than the normal pay rate. For example, a person whose normal pay rate is $10 an hour would receive $20 ($10 \times 2) an hour if they were paid overtime at double time. Another common overtime rate is time-and-a-half. It is the normal pay rate multiplied by $1\frac{1}{2}$ or 1.5. Here a person would receive $15 ($10 \times 1.5) an hour.

<table>
<thead>
<tr>
<th>Overtime rates</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Time-and-a-half rate</td>
<td>normal pay rate \times 1.5</td>
</tr>
<tr>
<td>Double time rate</td>
<td>normal pay rate \times 2</td>
</tr>
</tbody>
</table>

**Example 3** Calculating wages involving overtime

John works for a building construction company. Find John’s wage during one week where he works 40 hours at the normal rate of $16 an hour, 3 hours at time-and-a-half rates and 1 hour at double time rates.

**Solution**

1. Write the quantity to be found.
   
   Wage = (40 \times 16) \text{ normal pay}

2. Normal wage is 40 multiplied by $16.

3. Payment for time-and-a-half is 3 multiplied by $16 multiplied by 1.5.

4. Payment for double time is 1 multiplied by $16 multiplied by 2.

5. Evaluate and write your answer in words.

   \begin{align*}
   &\text{Wage} = (40 \times 16) \text{ normal pay} \\
   &\text{Normal wage} = 40 \times 16 \\
   &\text{Payment for time-and-a-half} = (3 \times 16 \times 1.5) \text{ time-and-a-half pay} \\
   &\text{Payment for double time} = (1 \times 16 \times 2) \text{ double time pay} \\
   &\text{Total wage} = 744.00 \\
   \end{align*}

   John’s wage is $744.

Special allowances

Employees receive an allowance if they work under difficult or dangerous conditions such as wet weather, extreme temperatures, confined spaces or isolated areas. Allowances are also paid when an employee has an expense related to their line of work such as uniform, meals, travel or tools.
Casual work

Casual work involves a set amount paid for each hour’s work. It can be paid weekly or fortnightly.

**Advantages**
- Working hours are flexible
- Pay rate is often higher

**Disadvantages**
- No superannuation, sick or holiday pay
- May lose job when not needed

### Example 4 Calculating casual pay

Milan is employed on a casual basis for a fast-food company. His rate of pay is $15 per hour plus time-and-half on Saturday and double time on Sunday.

Last week Milan worked from 10.30 a.m. until 2.30 p.m. on Thursday, from 9.30 a.m. until 2.00 p.m. on Saturday, and from 12 noon until 4 p.m. on Sunday. How much did Milan earn last week?

**Solution**

1. Write the quantity to be found.
2. Normal wage is 4 hours (Thursday 10.30 a.m. until 2.30 p.m.) multiplied by $15.
3. Payment for time-and-a-half is 4.5 hours (Saturday 9.30 a.m. until 2.00 p.m.) multiplied by $15 multiplied by 1.5.
4. Payment for double time is 4 hours (Sunday 12 noon until 4 p.m.) multiplied by $15 multiplied by 2.
5. Evaluate and write using correct units.
6. Write your answer in words.

Wage = \((4 \times 15)\) normal pay

\[+ (4.5 \times 15 \times 1.5)\] time-and-a-half pay

\[+ (4 \times 15 \times 2)\] double time pay

\[= \$281.25\]

Milan’s wage is $281.25
1 Calculate the payment for working 4 hours overtime at time-and-a-half given the following normal pay rates.
   a $18.00  
   b $39.50  
   c $63.20  
   d $43.83

2 Calculate the payment for working 3 hours overtime at double time given the following normal pay rates.
   a $37.99  
   b $19.05  
   c $48.78  
   d $61.79

3 Andrew earns $32.50 an hour as a driver. He works 38 hours a week at normal time and 5 hours a week at double time. Find his weekly wage. Answer correct to the nearest cent.

4 Mei is a casual employee who worked 8 hours at normal time and 2 hours at time-and-a-half. Her normal rate of pay is $12.30 per hour. What is her pay for the above time?

5 Oliver earns $23.80 an hour. He earns normal time during week days and time-and-a-half on weekends. Last week he worked 34 hours during the week and 6 hours during the weekend. Find his weekly wage.

6 George works in a take-away food store. He gets paid $18.60 per hour for a standard 35-hour week. Additional hours are paid at double time. His time card is shown below.

<table>
<thead>
<tr>
<th>Day</th>
<th>In</th>
<th>Out</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>8.30 a.m.</td>
<td>4.30 p.m.</td>
</tr>
<tr>
<td>Tuesday</td>
<td>9.00 a.m.</td>
<td>6.00 p.m.</td>
</tr>
<tr>
<td>Wednesday</td>
<td>8.45 a.m.</td>
<td>5.45 p.m.</td>
</tr>
<tr>
<td>Thursday</td>
<td>9.00 a.m.</td>
<td>6.30 p.m.</td>
</tr>
<tr>
<td>Friday</td>
<td>10.00 a.m.</td>
<td>8.00 p.m.</td>
</tr>
</tbody>
</table>

   a How many hours did George work this week?
   b Find his weekly wage.

7 Dave works for 5 hours at double time. He earns $98.00. Find his normal hourly rate.

8 Ella works 3 hours at time-and-a-half and earns $72.00. Find her normal hourly rate.
Zahid is paid a set wage of $774.72 for a 36-hour week, plus time-and-a-half for overtime. In one particular week he worked 43 hours. What are Zahid’s earnings?

Samantha is paid a set wage of $962.50 for a 35-hour week, plus double time for overtime. In one particular week she worked 40 hours. What are Samantha’s earnings?

A window washer is paid $22.50 per hour and a height allowance of $55 per day. If he works 9 hours each week day, calculate the:

a amount earned each week day
b total weekly earnings for five days of work.

Anna works in a factory and is paid $18.54 per hour. If she operates the oven she is paid temperature allowance of $4.22 per hour in addition to her normal rate. Find her weekly pay if she works a total of 42 hours including 10 hours working the oven.

Scott is a painter who is paid a normal rate of $36.80 per hour plus a height allowance of $21 per day. If Scott works 9 hours per day for 5 days on a tall building, calculate his total earnings.

Kathy is a scientist who is working in a remote part of Australia. She earns a salary of $86,840 plus a weekly allowance of $124.80 for working under extreme and isolated conditions. Calculate Kathy’s fortnightly pay.

Chris is a soldier and is paid $27 per hour plus an additional allowance of $12.50 per hour for disarming explosives. What is his total weekly pay if he works from 6 a.m. to 2 p.m. for 7 days a week on explosives?

A miner earns a wage of $46.20 per hour plus an allowance of $28.20 per hour for working in cramped spaces. The miner worked a 10-hour day for 5 days in small shaft. What is his weekly pay?
Development

17 Vien is employed on a casual basis. His rate of pay is shown below. Last week Vien worked from 11.30 a.m. until 3.30 p.m. on Thursday, from 8.30 a.m. till 2.00 p.m. on Saturday, and from 12 noon till 6 p.m. on Sunday. How much did Vien earn last week?

<table>
<thead>
<tr>
<th>Rate of pay</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekdays</td>
<td>$18.60 per hour</td>
</tr>
<tr>
<td>Saturday</td>
<td>Time-and-a-half</td>
</tr>
<tr>
<td>Sunday</td>
<td>Double time</td>
</tr>
</tbody>
</table>

18 A mechanic’s industrial award allows for normal rates for the first 7 hours on any day. It provides for overtime payment at the rate of time-and-a-half for the first 2 hours and double time thereafter. Find a mechanic’s wage for a 12-hour day if their normal pay rate is $42.50 an hour.

19 Abbey’s timesheet is shown opposite. She gets paid $12.80 per hour during the week, time-and-a-half for Saturdays and double time for Sundays. Abbey is not paid for meal breaks.

<table>
<thead>
<tr>
<th>Day</th>
<th>In</th>
<th>Out</th>
<th>Meal break</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>8.30 a.m.</td>
<td>5.30 p.m.</td>
<td>1 hour</td>
</tr>
<tr>
<td>Tuesday</td>
<td>8.30 a.m.</td>
<td>3.00 p.m.</td>
<td>1 hour</td>
</tr>
<tr>
<td>Wednesday</td>
<td>8.30 a.m.</td>
<td>5.30 p.m.</td>
<td>1 hour</td>
</tr>
<tr>
<td>Thursday</td>
<td>8.30 a.m.</td>
<td>9.00 p.m.</td>
<td>2 hours</td>
</tr>
<tr>
<td>Friday</td>
<td>4.00 p.m.</td>
<td>7.00 p.m.</td>
<td>No break</td>
</tr>
<tr>
<td>Saturday</td>
<td>8.00 a.m.</td>
<td>4.00 p.m.</td>
<td>No break</td>
</tr>
<tr>
<td>Sunday</td>
<td>10.00 a.m.</td>
<td>3.00 p.m.</td>
<td>30 minutes</td>
</tr>
</tbody>
</table>

a How much did Abbey earn at the normal rate of pay during this week?
b How much did Abbey earn from working at penalty rates during this week?
c What percentage of her pay did Abbey earn by working at penalty rates?

20 Connor works a 35-hour week and is paid $18.25 per hour. Any overtime is paid at time-and-a-half. Connor wants to earn enough overtime to earn at least $800 each week. What is the minimum number of hours overtime that Connor will need to work?

21 Max works in a shop and earns $21.60 per hour at the normal rate. Each week he works 15 hours at the normal rate and 4 hours at time-and-a-half.

a Calculate Max’s weekly wage.
b Max aims to increase his weekly wage to $540 by working extra hours at the normal rate. How many extra hours must Max work?
c Max’s rate of pay increased by 5%. What is his new hourly rate for normal hours?
d What will be Max’s new weekly wage assuming he maintains the extra working hours?
1.3 Annual leave loading and bonuses

Annual leave loading

Annual leave loading is a payment calculated as a fixed percentage of the normal pay over a fixed number of weeks. It is usually paid at the beginning of the annual holidays to meet the increased expenses of a holiday.

<table>
<thead>
<tr>
<th>Annual leave loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual leave loading or holiday loading is usually at the rate of $17\frac{1}{2}$%.</td>
</tr>
<tr>
<td>Holiday loading = $17\frac{1}{2}$% × Normal weekly pay × Number of weeks leave</td>
</tr>
</tbody>
</table>

Example 5  Finding the annual leave loading

Thomas works a 40-hour week at a rate of $18.50 per hour. He receives $17\frac{1}{2}$% of 4 weeks normal pay as holiday loading. What is Thomas’s pay for the holiday?

Solution

1. Write the quantity (4 weeks pay) to be found.  
   4 weeks pay = (18.50 × 40 × 4) = $2960
2. Multiply the pay rate by the number of hours worked during the week by the number of weeks (4).
3. Evaluate.
4. Write the quantity (loading) to be found.  
   Loading = $17\frac{1}{2}$% of $2960
   Loading = 0.175 × 2960 = $518
5. Multiply 0.175 ($17\frac{1}{2}$%) by 4 weeks pay (2960).
6. Evaluate.
7. Write the quantity (holiday pay) to be found.  
   Holiday pay = $2960 + $518
   Holiday pay = $3478
8. Add the 4 weeks pay (2960) and the loading (518).
9. Evaluate.
10. Write your answer in words.  
    Thomas receives $3478 in holiday pay.
Bonus

A bonus is an extra payment or gift earned as reward for achieving a goal. It is paid in addition to the normal income. Bonuses are an incentive for employees to work harder. For example, an employee may receive a bonus of 5% of their annual salary or $1000.

<table>
<thead>
<tr>
<th>Bonus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bonus is an extra payment or gift earned as reward for achieving a goal.</td>
</tr>
</tbody>
</table>

Example 6 Calculating a bonus

Amber’s employer has decided to reward all their employees with a bonus. The bonus awarded is 5% of their annual salary. What is Amber’s bonus if her annual salary is $68560?

Solution

1 Write the quantity (bonus) to be found. Bonus = 5% of $68560
2 Multiply the bonus percentage (5%) by the annual salary ($68560). $0.05 \times 68560 = 3428$
3 Evaluate.
4 Write the answer in words. Amber receives a bonus of $3428.
1. A business pays $17\frac{1}{2}\%$ holiday loading on 4 weeks normal pay. Calculate the amount of holiday loading for these employees.
   a. Nicholas earns $6240 normal pay for 4 weeks.
   b. Kumar earns $5130 normal pay for 4 weeks.
   c. Samantha earns $5320 per fortnight.
   d. Andrew earns $2760 per fortnight.
   e. Bilal earns $1680 per week.

2. The local government pays its employees $17.5\%$ holiday loading on 4 weeks normal pay. Calculate the amount of holiday loading for these employees.
   a. Paige earns an annual salary of $105,560. (Assume 52 weeks in a year.)
   b. Jack earns an annual salary of $58,760. (Assume 52 weeks in a year.)
   c. Riley earns $32 per hour and works a 35-hour week.
   d. A’ishah earns $41.50 per hour and works a 37-hour week.

3. Laura works a 37-hour week at a rate of $20.50 per hour. When she takes her 4 weeks annual leave, she is paid a loading of $17\frac{1}{2}\%$. What is Laura’s holiday pay when she takes her leave?

4. Ethan is paid $660 per week. He receives a holiday leave loading of $17.5\%$ for three weeks holiday pay. What is his total holiday pay?

5. A bonus is awarded as a percentage of a person’s annual salary. The percentage awarded depends on the person’s achievements. Calculate the following bonuses.
   a. $6\%$ of $48,360$
   b. $3\%$ of $96,540$
   c. $2\%$ of $103,290$
   d. $4.5\%$ of $65,420$
   e. $2\frac{1}{2}\%$ of $88,580$
   f. $1\frac{1}{4}\%$ of $164,400$

6. Grace received a bonus of $12\%$ of her weekly wage. What was Grace’s bonus if her weekly wage is $1850$?

7. Patrick’s boss has decided to reward all employees with a bonus. The bonus awarded is $7\frac{3}{4}\%$ of their annual salary. What is Patrick’s bonus if his annual salary is $74,980$?
Development

8 Chen receives 17.5% of 4 weeks normal pay as leave loading. If Chen’s leave loading was $379.40, what was his normal weekly pay?

9 Create the spreadsheet below.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mathematics General Preliminary</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Worksheet to calculate bonus</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Family name</td>
<td>First name</td>
<td>Years of service</td>
<td>Overtime</td>
</tr>
<tr>
<td>5</td>
<td>Cupac</td>
<td>Charlotte</td>
<td>15</td>
<td>121</td>
</tr>
<tr>
<td>6</td>
<td>Fraser</td>
<td>Dylan</td>
<td>10</td>
<td>24</td>
</tr>
<tr>
<td>7</td>
<td>Humes</td>
<td>Sienna</td>
<td>13</td>
<td>46</td>
</tr>
<tr>
<td>8</td>
<td>Huynh</td>
<td>Benjamin</td>
<td>6</td>
<td>90</td>
</tr>
<tr>
<td>9</td>
<td>Sengmany</td>
<td>Xay</td>
<td>8</td>
<td>50</td>
</tr>
<tr>
<td>10</td>
<td>White</td>
<td>Ava</td>
<td>12</td>
<td>119</td>
</tr>
</tbody>
</table>

a The formula for cell E5 is ‘=IF(AND(C5>10,D5>50),400,0)’. It is the formula that calculates a $400 bonus if the employer has more than 10 years of service and more than 50 hours of overtime. Fill down the contents of E6 to E10 using this formula.

b Edit the overtime amount for Sienna Humes to 52. Observe the changes in E7.

c Edit the years of service for Ava White to 10. Observe the changes in E10.

d Edit the overtime amount for Dylan Fraser to 60. Observe the changes in E6.

e Edit the years of service for Xay Sengmany to 20. Observe the changes in E9.

f Edit the overtime amount for Benjamin Huynh to 40. Observe the changes in E8.

10 Jim receives holiday loading of $17\frac{1}{2}\%$ of 4 weeks pay. His loading was $996.80.

a Find his normal weekly pay.

b Find his normal hourly pay rate if he usually works a 40 hour week.

11 Chloe’s annual salary is $72800.

a Calculate her weekly wage.

b Holiday loading is calculated at $17\frac{1}{2}\%$ of four weeks pay. Calculate Chloe’s holiday loading.

c Chloe’s employer has proposed to increase her annual salary by 1%. What is Chloe’s new annual salary?

d The increase in Chloe’s annual salary is compensation for removing holiday loading. Explain why Chloe is worse off financially with the 1% increase.
1.4 Commission

Commission is usually a percentage of the value of the goods sold. People such as real estate agents and salespersons are paid a commission.

**Advantages**
- Higher sales increase the income
- May receive a small payment (retainer) plus the commission

**Disadvantages**
- Income may vary each week
- Competition for customers is usually high

Commission

Commission = Percentage of the value of the goods sold

---

**Example 7** Finding the commission

Zoë sold a house for $650,000. Find the commission from the sale if her rate of commission was 1.25%.

**Solution**

1. Write the quantity (commission) to be found. Commission = 1.25% of $650,000
2. Multiply 1.25% by $650,000. = 0.0125 \times 650,000
3. Evaluate and write using correct units. = $8125
4. Write the answer in words. Commission earned is $8125.

---

**Example 8** Finding the commission

An electrical goods salesman is paid $570.50 a week plus 4% commission on all sales over $5000 a week. Find his earnings in a week where his sales amounted to $6800.

**Solution**

1. Commission on sales of over $5000 is $1800. Sales = 6800 – 5000 = 1800
2. Write the quantity (earnings) to be found. Earnings = 570.50 + (4% of $1800)
3. Add weekly payment and commission of 4% on $1800. = 570.50 + (0.04 \times 1800) = $642.50
4. Evaluate and write using correct units. Earnings were $642.50.
5. Write the answer in words.
1. Jake earns a commission of 4% on the sales price. What is the commission on the following sales?
   a. $8820
   b. $16 740
   c. $34 220

2. Michael Tran is a real estate agent. He earns 2% on all sales. Calculate Michael’s commission on these sales.
   a. $456 000
   b. $420 000
   c. $285 500
   d. $590 700

3. Olivia sold a car valued at $54 000. Calculate Olivia’s commission from the sale if her rate of commission is 3%.

4. Sophie earns a weekly retainer of $355 plus a commission of 10% on sales. What are Sophie’s total earnings for each week if she made the following sales?
   a. $760
   b. $2870
   c. $12 850

5. Chris earns $240 per week plus 25% commission on sales. Calculate Chris’s weekly earnings if he made sales of $2880.

6. Ella is a salesperson for a cosmetics company. She is paid $500 per week and a commission of 3% on sales in excess of $800.
   a. What does Ella earn in a week when she makes sales of $1200?
   b. What does Ella earn in a week when she makes sales of $600?

7. A real estate agent charges a commission of 5% for the first $20 000 of the sale price and 2.5% for the balance of the sale price. Copy and complete the following table.

<table>
<thead>
<tr>
<th>Sale price</th>
<th>5% commission on $20 000</th>
<th>2.5% commission on balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>$150 000</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>$200 000</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>$250 000</td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>$300 000</td>
<td></td>
</tr>
</tbody>
</table>
Chapter 1 — Earning and managing money

**Development**

8 Jade is a real estate agent and is paid an annual salary of $18000 plus a commission of 2.5% on all sales. She is also paid a car allowance of $50 per week. What was Jade’s total yearly income if she sold $1200000 worth of property?

9 The commission that a real estate agent charges for selling a property is based on the selling price and is shown below.

<table>
<thead>
<tr>
<th>Selling price</th>
<th>Commission</th>
</tr>
</thead>
<tbody>
<tr>
<td>First $20000</td>
<td>5%</td>
</tr>
<tr>
<td>Next $120000</td>
<td>3%</td>
</tr>
<tr>
<td>Thereafter</td>
<td>1%</td>
</tr>
</tbody>
</table>

What is the commission charged on properties with the following selling prices?

a $100000 

b $150000 

c $200000

10 Harry is a sales person. He earns a basic wage of $300 per week and receives commission on all sales. Last week he sold $20000 worth of goods and earned $700. What was Harry’s rate of commission?

11 Caitlin and her assistant, Holly, sell perfume. Caitlin earns 20% commission on her own sales, as well as 5% commission on Holly’s sales. What was Caitlin’s commission last month when she made sales of $1800 and Holly made sales of $2000?

12 A real estate agency charges a commission for selling a property based on the selling price below.

<table>
<thead>
<tr>
<th>Commission rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to $300000</td>
</tr>
<tr>
<td>$300000 and over</td>
</tr>
</tbody>
</table>

Bailey is paid by the real estate agent $180 per week plus 5% of the commission received by the real estate agency. This week, Bailey sold one property for $290000 and one for $600000. He sold no properties in the previous week.

a What is the commission paid to the real estate agency for the property worth $290000?

b What is the commission paid to the real estate agency for both properties?

c Calculate Bailey’s pay for this week.

d What is Bailey’s average weekly income for the two-week period?
1.5 Piecework, royalties and income from government

**Piecework**

Piecework is a fixed payment for work completed. People who are employed to complete a particular task, such as an electrician installing lights, are earning piecework.

**Advantages**
- Incentive to work hard. Income increases with more work completed
- Often flexible hours and work place

**Disadvantages**
- No permanent employment
- No superannuation, sick or holiday pay

**Example 9** Calculating a piecework payment

Noah is a tiler and charges $47 per square metre to lay tiles. How much will he earn for laying tiles in a room whose area is 14 square metres?

**Solution**

1. Write the quantity (earnings) to be found.  
   Earnings = 14 × $47
2. Multiply number of square metres (14) by the charge ($47).  
   = $658
3. Evaluate and write using correct units.
4. Write the answer in words.  
   Noah earns $658.

**Royalties**

A royalty is a payment for the use of intellectual property such as a book or song. It is calculated as a percentage of the revenue or profit received from its use. People such as creative artists and authors receive a royalty.

**Advantages**
- Incentive to work hard. Income increases with a better product
- Flexible hours and work place

**Disadvantages**
- Income varies according to sales
- No superannuation, sick and holiday pay

**Royalty**

Royalty = Percentage of the goods sold or profit received
Example 10  Calculating a royalty

Andrew is an author and is paid a royalty of 12% of books sold. Find his royalties if there were 2480 books sold at $67.50 each.

Solution
1. Write the quantity (royalty) to be found.  
   Royalty = 12% of (2480 × $67.50)
2. Multiply 12% by the total sales or 2480 × $67.50
   = 0.12 × 2480 × 67.50
   = $20,088
3. Evaluate and write using correct units.
4. Write the answer in words.
   Andrew earns $20,088 in royalties.

Incomes from the government

Some people receive a pension, allowance or benefit from the government. For example, the age pension is payable for a person who has reached 65 years of age (male). The requirements for receiving these incomes may change according to the priorities of the current government.

Example 11  Calculating an income from the government

Youth allowance helps people studying, undertaking training or in an apprenticeship.

<table>
<thead>
<tr>
<th>Status</th>
<th>Allowance per fortnight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 18, at home</td>
<td>$194.50</td>
</tr>
<tr>
<td>Under 18, away from home</td>
<td>$355.40</td>
</tr>
<tr>
<td>18 and over, away from home</td>
<td>$355.40</td>
</tr>
<tr>
<td>18 and over, at home</td>
<td>$233.90</td>
</tr>
</tbody>
</table>

How much youth allowance does Ryan receive in a year if he is over 18 and living at home while studying?

Solution
1. Write the quantity (allowance) to be found.  
   Allowance = $233.90 × 26
   = $6081.40
3. Evaluate and write using correct units.
4. Write the answer in words.  
   Youth allowance is $6081.40.
1 A dry cleaner charges $9 to clean a dress. How much do they earn by dry cleaning:
   a 250 dresses?  
   b 430 dresses?  
   c 320 dresses?  

2 Abbey is an artist who makes $180 for each large portrait and $100 for each small portrait. How much will she earn if she sells 13 large and 28 small portraits?  

3 Angus works part-time by addressing envelopes at home and is paid $23 per 100 envelopes completed, plus $40 to deliver them to the office. What is his pay for delivering 2000 addressed envelopes?  

4 Emilio earns a royalty of 24% on net sales from writing a fiction book. There were $18,640 net sales in the last financial year. What is Emilio’s royalty payment?  

5 Calculate the royalties on the following sales.
   a 3590 books sold at $45.60 with a 8% royalty payment  
   b 18,432 DVDs sold at $20 with a 10% royalty payment  
   c 4805 computer games sold at $65.40 with a 5% royalty payment  

6 Austudy provides financial help for people aged 25 or older who are studying full-time.

<table>
<thead>
<tr>
<th>Status</th>
<th>Fortnightly payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single, no children</td>
<td>$355.40</td>
</tr>
<tr>
<td>Single, with children</td>
<td>$465.60</td>
</tr>
<tr>
<td>Partnered, with children</td>
<td>$390.20</td>
</tr>
<tr>
<td>Partnered, no children</td>
<td>$355.40</td>
</tr>
</tbody>
</table>

   a How much does Madison receive in a year if she is single with a child and studying full-time? Madison is 29 years old.  
   b How much does Oscar receive in a year if he is partnered with no children and studying full-time? Oscar is 35 years old.  

7 Child-care benefit is available to support parents in the workforce. The rate per fortnight is shown below.

<table>
<thead>
<tr>
<th>No. of children</th>
<th>Fortnightly pay</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$337.00</td>
</tr>
<tr>
<td>2</td>
<td>$704.34</td>
</tr>
<tr>
<td>3</td>
<td>$1099.26</td>
</tr>
</tbody>
</table>

   Calculate the yearly payment for:
   a One child  
   b Two children  
   c Three children
Development

8 Tahlia receives $19.40 for delivering 200 brochures. She receives an additional $30 per day when delivering in wet weather. How much does she receive for delivering:
   a 600 brochures on a clear day?
   b 1000 brochures on a clear day?
   c 800 brochures on a wet day?
   d 1400 brochures on a wet day?

9 Mitchell works in a factory that makes key rings. Each key ring completed earns him $0.34. Mitchell also receives an additional $25 if he works on the weekend. How much does he earn for making:
   a 420 key rings on Friday?
   b 460 key rings on Wednesday?
   c 380 key rings on Saturday?
   d 230 key rings on Sunday?

10 A doctor charges each patient $33.50 for a consultation. He works for 6 hours a day and usually sees 5 patients per hour.
   a How much money does the doctor receive each day?
   b The doctor also has costs of $410 per day. What is the profit for the day?

11 Austudy is reduced by 50 cents for every dollar between $62 and $250 of fortnightly income. Tyler is 28 years of age, partnered and has one child. He is studying full-time but earning $126 per fortnight in a part-time job. What will be Tyler’s fortnightly payment from Austudy? Use the Austudy table on the previous page.

12 Anthony writes crime novels. He has just received his half-yearly statement of sales of his latest novel. He has been informed that 20 000 copies were printed and there are 8760 left in stock. Anthony receives 15% of the retail price as royalties.
   a How many copies of his latest novel were sold?
   b What is Anthony’s royalty if the retail price of his latest novel is $24.95?
   c What is Anthony’s royalty if the retail price of $24.95 was discounted by 10%?

13 The maximum youth allowance is reduced by $1 for every $4 that the youth’s parents’ income is over $31 400. By how much is Charlotte’s youth allowance reduced if her parents earn a combined income of $34 728?
1.6 Gross pay, net pay and deductions

Employers must pay the minimum rate of an award or enterprise agreement. The rate will depend on the type of work and the actual times worked. Gross pay is the total of an employee’s pay including allowances, overtime pay, commissions and bonuses. It is the amount of money before any deductions are made. The amount remaining after deductions have been subtracted is called the net pay or ‘take-home pay’.

Deductions are a regular amount of money subtracted from a person’s wage or salary. People have many different deductions subtracted from their gross pay such as:

- Income tax – a charge that funds the government’s operations
- Superannuation – an investment for retirement. An employer must contribute 9% of the employee’s wages into a superannuation fund.
- Health insurance – private insurance to cover medical and dental costs
- Union fee – payment for union membership.

**Gross pay, net pay and deductions**

Net pay = Gross pay − Deductions

---

**Example 12 Calculating the net pay**

Laura is a nurse who receives a gross weekly wage of $2345. She has the following deductions taken from her pay:

- Income tax – $861
- Health fund payments – $48.25
- Superannuation – $67.95.

What is Laura’s net pay?

**Solution**

1. Write the quantity (net pay) to be found. Net pay = Gross pay − deductions
2. Write the formula for net pay. $2345 − (861 + 48.25 + 67.95)
3. Substitute the values for gross pay and deductions. $2345 − 996.2
4. Evaluate and write using correct units. $1367.80
5. Write the answer in words. Laura’s net pay is $1367.80
Example 13  Reading information from a pay slip

Oscar received the following pay slip. What amount is received this pay for:

a  gross pay?
b  net pay?
c  superannuation?
d  PAYG tax?

<table>
<thead>
<tr>
<th></th>
<th>Hours</th>
<th>Rate</th>
<th>Amount</th>
<th>This Pay</th>
<th>Year to Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ordinary time</td>
<td>26.00</td>
<td>$25.000</td>
<td>$650.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual holiday</td>
<td>0.0</td>
<td>$25.994</td>
<td>$ 0.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Gross Earnings</td>
<td></td>
<td></td>
<td></td>
<td>$650.00</td>
<td>$1300.00</td>
</tr>
<tr>
<td>PAYG Tax</td>
<td></td>
<td></td>
<td></td>
<td>$100.00</td>
<td></td>
</tr>
<tr>
<td>Social Club</td>
<td></td>
<td>$ 2.00</td>
<td></td>
<td>$4.00</td>
<td></td>
</tr>
<tr>
<td>HECS Repayments</td>
<td></td>
<td>$ 13.00</td>
<td></td>
<td>$ 26.00</td>
<td></td>
</tr>
<tr>
<td>Superannuation</td>
<td></td>
<td>$ 35.00</td>
<td></td>
<td>$ 70.00</td>
<td></td>
</tr>
<tr>
<td>Less Post-tax deductions</td>
<td></td>
<td>$ 50.00</td>
<td></td>
<td>$ 100.00</td>
<td></td>
</tr>
<tr>
<td>Net Pay</td>
<td></td>
<td></td>
<td></td>
<td>$450.00</td>
<td>$900.00</td>
</tr>
<tr>
<td>Direct Credit to account: 00000000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Payments</td>
<td></td>
<td></td>
<td></td>
<td>$450.00</td>
<td>$900.00</td>
</tr>
</tbody>
</table>

Solution

1. Read the value for gross earnings.  
a  Gross pay is $650.00.
2. Read the value for net pay.  
b  Net pay is $450.00.
3. Read the value for superannuation.  
c  Superannuation is $35.00.
4. Read the value for PAYG tax.  
d  PAYG tax is $100.00.
1 Calculate the weekly net pay for these people.
   a Isabella receives a gross pay of $1386 and has total deductions of $875.
   b Kim-Ly receives a gross pay of $985 and has total deductions of $265.
   c Christopher receives a gross pay of $715 and has total deductions of $222.

2 Calculate the weekly net earnings for these people.
   a Daniel receives a gross weekly wage of $1056 and has deductions of $294.75 for income tax, $28.80 for superannuation and $325.05 for loan repayments.
   b Hannah receives a gross weekly wage of $3042 and has deductions of $1068 for income tax, health fund payments for $50.85, superannuation for $53.55 and savings for $450.
   c Kapil receives a gross weekly wage of $2274. He has deductions of $768 for income tax, $28.95 for health insurance, $49.02 for superannuation, $15.30 for life insurance and $450 for loan repayments.

3 Jack’s annual gross pay is $48 750. The deductions are $9150 for income tax, $1462 for health insurance and $5280 for superannuation.
   a What are Jack’s total deductions?
   b What is Jack’s annual net pay?

4 Calculate the weekly gross pay for these people.
   a Aaron receives a net weekly pay of $1245 and has deductions of $374.15 for income tax, $45.60 for superannuation and $25.20 for union membership.
   b Hannah receives a net weekly pay of $2645 and has deductions of $1068 for income tax, $53.95 for health fund payments and $83.75 for superannuation.
   c Ivan receives a net weekly pay of $2511. He has deductions of $913 for income tax, $31.95 for health insurance, $59.46 for superannuation, $18.20 for life insurance and $470 for loan repayments.

5 Harry’s net pay is $57 908. The deductions are $12 580 for income tax, $2087 for health insurance and $6910 for superannuation. What is Harry’s gross pay?
6 Joshua is on a working holiday. He picked pieces of fruit on a farm as follows:
   Monday – 170
   Tuesday – 130
   Wednesday – 145
   Thursday – 210
   Friday – 190.
   a What is his gross salary at $0.55 per piece of fruit?
   b What is his net salary if he has total deductions of $121?

7 Charlotte owns an investment property that is rented out for $320 per week. She pays the real estate agent a fee of 3% for managing the property.
   a How much does she pay the real estate agent each week?
   b How much does Charlotte receive each week from the investment property?
   c What is the net income received by Charlotte from this property over the year?

8 Nicholas receives a yearly gross salary of $74 568. He pays 18% of his weekly gross salary in income tax. He contributes 9% of his weekly gross salary to his superannuation fund and has $155 in miscellaneous deductions each week.
   a What is his gross weekly pay?
   b How much income tax is deducted each week?
   c How much superannuation is he contributing each week?
   d What is the total amount of deductions made each week?
   e What is his net weekly pay this week?

9 Lakshmi receives a fortnightly pay of $2240. She pays 15% of her weekly gross salary in income tax. She contributes 9% of her weekly gross salary to her superannuation fund and has $95 in miscellaneous deductions each week.
   a What is her gross weekly pay?
   b How much income tax is deducted each week?
   c How much superannuation is she contributing each week?
   d What is the total amount of deductions made each week?
   e What is her net weekly pay this week?
Development

10 Charlie is a building worker who receives $48.50 per hour for a 38-hour week. In addition he receives an allowance of $3.50 per hour for work on a multistorey development. Charlie is currently working on six-storey apartment block. Each week he has deducted from his pay a superannuation contribution of 9% of his gross pay and union fees of $28.45. Because he only started working late in the financial year, he doesn’t yet have to pay tax.
   a  What is his gross weekly pay this week?
   b  How much superannuation is he contributing each week?
   c  What is his net weekly pay this week?

11 Emily receives a gross fortnightly salary of $2703 and has deductions of $891.75 for income tax, $54.30 for health fund payments, $753 for car loan payments and $14.55 for union subscription.
   a  What is Emily’s net income each fortnight?
   b  What percentage of her gross income is deducted for income tax? (Answer correct to one decimal place.)

12 Liam received a gross fortnightly salary of $3795. His pay deductions were $937.20, for income tax, $215.25 for superannuation, $21.45 for union fees and $201 for a home loan repayment.
   a  What is his net income each fortnight?
   b  What was his weekly net pay?
   c  What percentage of his gross income was deducted for income tax? (Answer correct to one decimal place.)
   d  If Liam’s loan repayment increased by 10%, what was his new fortnightly net pay?

13 Jane normally works 37 hours a week at $54 per hour. In one particular week she worked 42 hours and received overtime at the rate of time-and-a-half. Her deductions for the week were income tax $602.20, medical fund $49.60, superannuation $74.40 and motor vehicle repayment $417.40.
   a  What was Jane’s gross weekly wage?
   b  What was her net income for the week?
   c  What percentage of her gross income is spent on a motor vehicle repayment? Answer correct to the nearest per cent.
1.7 Budgeting

Budgeting involves balancing of income and the expenses. It is planning how to manage your income. Budgets are created for a specified time such as weekly, monthly or yearly.

**Creating a budget**

1. List all the income categories.
2. List all the expense categories.
3. Calculate the total of the income and expenses categories.
4. Balance the budget by modifying the categories or by entering a balance category.

**Example 14 Balancing a budget**

Balance the following weekly budget.

<table>
<thead>
<tr>
<th>Income</th>
<th>Expenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salary $1726.15</td>
<td>Clothing $73.08</td>
</tr>
<tr>
<td>Bonus $ 20.00</td>
<td>Gifts and Christmas$114.80</td>
</tr>
<tr>
<td>Investment $156.78</td>
<td>Groceries $467.31</td>
</tr>
<tr>
<td>Part-time work $393.72</td>
<td>Insurance $171.34</td>
</tr>
<tr>
<td></td>
<td>Loan repayments $847.55</td>
</tr>
<tr>
<td></td>
<td>Motor vehicle costs $105.96</td>
</tr>
<tr>
<td></td>
<td>Phone $ 38.26</td>
</tr>
<tr>
<td></td>
<td>Power and heating $ 51.82</td>
</tr>
<tr>
<td></td>
<td>Rates $ 54.82</td>
</tr>
<tr>
<td></td>
<td>Recreation $216.79</td>
</tr>
<tr>
<td></td>
<td>Work-related costs $ 68.76</td>
</tr>
<tr>
<td></td>
<td>Balance</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

**Solution**

1. Add all the income. 
   
   Income = 1726.15 + … + 393.72
   
   = $2296.65

2. Add all the expenses excluding the ‘balance’.
   
   Expenses = 73.08 + … + 68.92
   
   = $2210.49

3. Subtract the total expenses from the total income.
   
   Balance = Income – Expenses
   
   = 2296.6 – 2210.49
   
   = $86.16

4. Write the result of step 3 as the balance.

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Example 15  Creating a budget

Maya and Logan have a weekly net wage of $954. Their monthly expenses are home loan repayment $1032, car loan repayment $600, electricity $102, phone $66 and car maintenance $120. Their other expenses include insurance $2160 annually, rates $1800 annually, food $180 weekly, petrol $48 fortnightly and train fares $36 weekly. Maya and Logan allow $72 for miscellaneous items weekly and need to save $84 per week for a holiday next year.

a  Prepare a monthly budget for Maya and Logan. Assume there are four weeks in a month.
b  What is the balance?
c  How can Maya and Logan ensure they have their holiday next year?

Solution

<table>
<thead>
<tr>
<th>Income</th>
<th>Expenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wage $3816</td>
<td>Home loan repayment $1032</td>
</tr>
<tr>
<td></td>
<td>Car loan repayment $600</td>
</tr>
<tr>
<td></td>
<td>Electricity $102</td>
</tr>
<tr>
<td></td>
<td>Phone $66</td>
</tr>
<tr>
<td></td>
<td>Car maintenance $120</td>
</tr>
<tr>
<td></td>
<td>Insurance $180</td>
</tr>
<tr>
<td></td>
<td>Rates $150</td>
</tr>
<tr>
<td></td>
<td>Food $720</td>
</tr>
<tr>
<td></td>
<td>Petrol $96</td>
</tr>
<tr>
<td></td>
<td>Train fares $144</td>
</tr>
<tr>
<td></td>
<td>Miscellaneous $288</td>
</tr>
<tr>
<td></td>
<td>Holiday $336</td>
</tr>
<tr>
<td></td>
<td>Balance $728</td>
</tr>
<tr>
<td>$3816</td>
<td>$3816</td>
</tr>
</tbody>
</table>

1  List all the monthly income categories.
2  List all the monthly expenses categories.
3  Calculate the total income and expenses categories.
4  Subtract the total expenses from the total income to calculate the balance.
5  The balance is $–18. A negative balance indicates an increase in their income or reduction in their expenses.

a  Solution is shown above.
Total income = $3816
Total expenses = $3834
b  Balance = $3816 – $3834 = $–18
Maya and Logan need to increase income or reduce expenses by $18.
Exercise 1G

1. Oscar and Jill are living in a unit. Part of their budget is shown below. Calculate the total amount paid over one year for:
   a. Electricity
   b. Insurance
   c. Food
   d. Rent.

2. Sarah earns $67,365 annually. She has budgeted 20% of her salary for rent. How much should she expect to pay to rent an apartment for one year?

3. Adam has constructed a yearly budget as shown below.

<table>
<thead>
<tr>
<th>Income</th>
<th>Expenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wage</td>
<td>$60,786.22</td>
</tr>
<tr>
<td>Interest</td>
<td>$674.15</td>
</tr>
<tr>
<td></td>
<td>$4,634.42</td>
</tr>
<tr>
<td>Council rates</td>
<td>$1,543.56</td>
</tr>
<tr>
<td>Electricity</td>
<td>$1,956.87</td>
</tr>
<tr>
<td>Entertainment</td>
<td>$4,987.80</td>
</tr>
<tr>
<td>Food</td>
<td>$17,543.90</td>
</tr>
<tr>
<td>Gifts and Christmas</td>
<td>$5,861.20</td>
</tr>
<tr>
<td>Insurance</td>
<td>$2,348.12</td>
</tr>
<tr>
<td>Loan repayments</td>
<td>$16,789.34</td>
</tr>
<tr>
<td>Motor vehicle costs</td>
<td>$2,458.91</td>
</tr>
<tr>
<td>Telephone</td>
<td>$832.98</td>
</tr>
<tr>
<td>Work-related costs</td>
<td>$812.67</td>
</tr>
<tr>
<td>Balance</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
</tr>
</tbody>
</table>

   a. Calculate the total income.
   b. Calculate the total expenses.
   c. Balance the budget.

4. Dimitri had a total weekly income of $104 made up of a part-time job earning $74 and an allowance of $30. He decided to budget his expenses in the following way:

   a. Prepare a weekly budget showing income and expenses.
   b. What is the balance?
Development

5 Create the spreadsheet below.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics General Preliminary</td>
<td>Worksheet to calculate the monthly budget</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Income</td>
<td>Part time pay</td>
<td>$2,000</td>
<td>$500.00</td>
<td>$2,300</td>
</tr>
<tr>
<td></td>
<td>Part time pay</td>
<td>$300</td>
<td>75.00</td>
<td>13%</td>
</tr>
<tr>
<td></td>
<td>Total income</td>
<td>$2,300</td>
<td>$575.00</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Expenses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Board</td>
<td>$1450</td>
<td>$112.50</td>
<td>20%</td>
</tr>
<tr>
<td></td>
<td>Car expenses</td>
<td>$100</td>
<td>$25.00</td>
<td>4%</td>
</tr>
<tr>
<td></td>
<td>Car loan repayment</td>
<td>$350</td>
<td>$87.50</td>
<td>15%</td>
</tr>
<tr>
<td></td>
<td>Clothing</td>
<td>$320</td>
<td>$80.00</td>
<td>14%</td>
</tr>
<tr>
<td></td>
<td>Eating out</td>
<td>$200</td>
<td>$50.00</td>
<td>9%</td>
</tr>
<tr>
<td></td>
<td>Entertainment</td>
<td>$400</td>
<td>$100.00</td>
<td>17%</td>
</tr>
<tr>
<td></td>
<td>Other expenses</td>
<td>$180</td>
<td>$45.00</td>
<td>8%</td>
</tr>
<tr>
<td></td>
<td>Savings</td>
<td>$300</td>
<td>$75.00</td>
<td>13%</td>
</tr>
<tr>
<td>18 Balance</td>
<td></td>
<td>$0</td>
<td>$0.00</td>
<td></td>
</tr>
</tbody>
</table>

a The formula for cell E5 is ‘=C5/C$7’. It is the formula for relative percentage. Fill down the contents of E5 to E7 using this formula.
b Enter formulas in E9:E17 to calculate the relative percentages for expenses.
c Edit the amount spent per month on eating out from $200 to $240. Observe the changes.
d Edit the amount of savings per month from $300 to $360. Observe the changes.
e Edit the amount of car expenses per month from $100 to $150. Observe the changes.

6 Ava has a gross fortnightly pay of $1896.
   a Ava has a mortgage with an annual repayment of $13,676. Calculate the amount that Ava must budget each fortnight for her mortgage.
   b Ava has budgeted $180 per week for groceries, $60 per week for entertainment, $468 per year for medical expenses and $80 per week to run a car. Express these as fortnightly amounts and calculate their total.
   c Ava has an electricity bill of $130 per quarter, telephone bill of $91 per quarter and council rates of $1,118 per annum. Express these amounts annually and convert to fortnightly amounts. What is the total of these fortnightly amounts?
   d Prepare a fortnightly budget showing income and expenses.
### Chapter summary – Earning and managing money

#### Salary and wages
- Salary – payment for a year’s work, which is then divided into equal monthly, fortnightly or weekly payments
- Wage – payment for work that is calculated on an hourly basis

#### Overtime and special allowances
- Overtime – work beyond the normal working day
- Casual rate – set amount paid for each hour’s work
- Time-and-a-half rate = normal rate $\times 1.5$
- Double time rate = normal rate $\times 2$
- Allowance – payment for difficult or dangerous conditions

#### Annual leave loading and bonuses
- Annual leave loading – payment for going on holidays
- Holiday loading = $17\frac{1}{2}\% \times$ normal weekly pay $\times$ weeks leave
- Bonus – extra payment or gift earned as a reward

#### Commission
- Commission – percentage of the value of the goods sold
- Retainer – small payment in addition to the commission

#### Piecework, royalties and government
- Piecework – payment for work completed
- Piecework = Number of units of work $\times$ Amount paid per unit
- Royalty – percentage of the goods sold or profit received
- Government income – pension, allowance or benefit

#### Gross pay, net pay and deductions
- Gross pay – total of the employee’s pay including allowances, overtime pay, commissions and bonuses
- Deductions – regular amount of money subtracted from a person’s wage or salary such as income tax
- Net pay = Gross pay – Deductions

#### Budgeting
- Budgeting – balancing of income and expenses. Budgets are created for a specified time such as weekly.
### Sample HSC – Objective-response questions

1. Alyssa receives a salary of $85,640. How much does she receive each fortnight?
   - A $3,293.84
   - B $3,293.85
   - C $1,646.92
   - D $1,646.93

2. Christopher receives a normal hourly rate of $22.60 per hour. What is his pay when he works 8 hours at a normal rate and 3 hours at time-and-a-half?
   - A $180.80
   - B $248.60
   - C $282.50
   - D $316.40

3. Rana works a 38-hour week at a rate of $26.00 per hour. She receives 17 1/2% of 4 weeks normal pay as holiday loading. What is Rana’s holiday loading?
   - A $172.90
   - B $691.60
   - C $3,952.00
   - D $4,643.60

4. Taylah earns a weekly retainer of $425 plus a commission of 8% on sales. What are her weekly earnings when she made sales of $8,620?
   - A $34.00
   - B $459.00
   - C $689.60
   - D $1,114.60

5. Ahmet is a carpet layer and charges $37.50 per square metre of carpet laid. How much will he earn for laying carpet in a room whose area is 9 square metres?
   - A $37.50
   - B $46.50
   - C $337.50
   - D $675.00

6. Isabelle earns a royalty of 18% on net sales from writing her autobiography. There were $24,520 net sales in the last year. What is Isabelle’s royalty payment?
   - A $4,413.60
   - B $20,106.40
   - C $24,520.00
   - D $28,933.60

7. Angus’s net pay is $68,806. The deductions are $20,630 for income tax, $1,051 for health insurance and $5,487 for superannuation. What is his gross pay?
   - A $27,168
   - B $41,638
   - C $47,125
   - D $95,974

8. Adam has the following bills: electricity $250 per quarter, phone $70 per month, rates $1,200 per year and rent $300 per week. What is the total amount Adam should budget for the year?
   - A $358
   - B $1,553
   - C $1,820
   - D $18,640
Chapter 1 — Earning and managing money

Review

Chapter summary – Earning Money

1 Jake earns $96,470.40 per annum and works an average of 48 hours per week.
   a What is his average weekly wage?
   b Calculate Jake’s hourly rate of pay.

2 Alex works for a fast-food company and is paid $13.50 per hour for a 35-hour week. He gets time-and-a-half pay for overtime worked on the weekdays and double time for the weekends. Last week he worked a normal 35-hour week plus three hours of overtime during the week and four hours of overtime on the weekend. What was his wage last week?

3 Carlo’s employer has decided to reward all employees with a bonus. The bonus awarded is $6 1\frac{1}{4}\%$ of their annual salary. What is Carlo’s bonus if his annual salary is $85,940?

4 The public service provides all employees with a $17\frac{1}{2}\%$ holiday loading on four weeks normal wages. Lucy works a 37-hour week for the public service in Canberra. She is paid a normal hourly rate of $32.40.
   a How much will Lucy receive in holiday loading?
   b Calculate the total amount of pay that Lucy will receive for her holidays.

5 Chelsea is a real estate agent and charges the following commission for selling the property: 3\% on the first $45,000, then 2\% for the next $90,000 and $1 1\frac{1}{2}\%$ thereafter.
   a What is Chelsea’s commission if she sold a property for $240,000?
   b How much would the owner of the property receive from the sale?

6 Patrick is a comedian who makes $120 for a short performance and $260 for a long performance. How much will he earn if he completes 11 short and 12 long performances?
7 Bailey is paid a royalty of 11.3% on the net sales of his book. The net sales of his book in the last financial year was $278420.
   a What is Bailey’s royalty payment in the last financial year?
   b Net sales this financial year are expected to decrease by 15%. What is the expected royalty payment for this financial year?

8 The maximum youth allowance is reduced by $1 for every $4 that the youth’s parents’ income exceeds $31400. By how much is Hannah’s youth allowance reduced if her parents earn a combined income of $35624?

9 William works as a builder. His annual union fees are $278.20. William has his union fees deducted from his weekly pay. What is the size of William’s weekly union deduction?

10 Quan received a gross fortnightly salary of $2968. His pay deductions were $765.60 for income tax, $345.15 for superannuation and $23.40 for union fees.
   a What was his fortnightly net pay?
   b What percentage of his gross income was deducted for income tax? (Answer correct to one decimal place.)

11 Joel is a carpet layer and charges $16 per square metre to lay carpet. How much will he earn for laying carpet in a house whose area is 32 square metres?

12 Daniel has a gross monthly wage of $3640. He has the following deductions taken from his pay: $764 for income tax, $71.65 for superannuation and $23.23 for union membership. What is Daniel’s net pay?

13 Hannah has budgeted $210 per week for groceries, $70 per week for leisure, $23 per fortnight for medical expenses and $90 per week to run a car. Calculate the monthly expenses. Assume 4 weeks in a month.

14 Amelie earns $90345 annually. She has budgeted 30% of her salary for a loan repayment. How much should she expect to pay for a loan repayment for one year?