

Foundation Mathematics Units 1 & 2

Chapter 7 Income and banking

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Chapter 7 Income and banking — 7C Rates of pay

Theory

Most people are paid for their work as either a **wage** or a **salary**. Being able to move between an hourly rate, a weekly pay and a yearly income — and to work out how overtime and penalty rates change the amount — lets you check a payslip, compare two jobs and plan a budget.

Wages and salaries.

A **wage** is paid for the hours actually worked, at an agreed **hourly rate**:

$$\text{gross wage} = \text{hourly rate} \times \text{hours worked}.$$

A **salary** is a fixed yearly amount, paid in equal instalments (weekly, fortnightly or monthly) no matter how many hours are worked in a particular week. **Gross pay** is the amount earned *before* tax and other deductions are taken out.

Pay periods and the year.

To move between pay periods, use the number of periods in a year:

- 1 year = 52 weeks = 26 fortnights = 12 months.

To change a yearly amount into a shorter period you **divide**; to change a short period into a year you **multiply**:

$$\text{weekly} = \frac{\text{annual}}{52}, \text{ fortnightly} = \frac{\text{annual}}{26}, \text{ monthly} = \frac{\text{annual}}{12}.$$

A fortnight is two weeks, and there are 26 fortnights (not 24) in a year — a common trap.

Overtime and penalty rates.

Hours worked beyond the ordinary week, or at unsociable times such as weekends and public holidays, are often paid at a higher **penalty rate**:

- **time-and-a-half** pays $1.5 \times$ the base rate;
- **double-time** pays $2 \times$ the base rate.

For example, at a base rate of \$20 an hour, one hour of time-and-a-half earns $20 \times 1.5 = \$30$ and one hour of double-time earns $20 \times 2 = \$40$.

Casual loading.

A **casual** worker has no paid holidays or sick leave, so they receive a **casual loading** — an extra percentage on top of the base rate (commonly 25 %) to make up for it:

$$\text{casual rate} = \text{base rate} \times (1 + \text{loading}).$$

Adding it up.

A week's gross pay is the **sum** of the pay at each rate: ordinary hours at the base rate, plus any overtime or penalty hours at their higher rates.

Worked examples

Example 1 — scaffolded

Priya is paid an hourly rate of \$26.40 and works 38 hours in a week. Find her gross weekly pay, and her gross yearly pay.

Working	Comment
Weekly pay = $\$26.40 \times 38 = \1003.20 .	Gross wage = rate $\times$ hours.
Yearly pay = $\$1003.20 \times 52 = \$52\,166.40$.	There are 52 weeks in a year, so multiply.
So Priya earns \$1003.20 a week and \$52 166.40 a year.	State both amounts with the dollar sign.

Example 2 — scaffolded

Daniel is on a salary of \$78 000 per year. Find his gross pay per week, per fortnight and per month.

Working	Comment
Weekly = $\frac{\$78\,000}{52} = \1500 .	Divide the annual salary by 52 weeks.
Fortnightly = $\frac{\$78\,000}{26} = \3000 .	26 fortnights in a year.
Monthly = $\frac{\$78\,000}{12} = \6500 .	12 months in a year.

Example 3 — unscaffolded

Mia's base rate of pay is \$28.00 an hour. In one week she works 38 ordinary hours, plus 4 hours at time-and-a-half and 2 hours at double-time. Find her gross pay for the week.

Work out the pay at each rate, then add:

$$\text{ordinary} = 38 \times \$28.00 = \$1064.00,$$

$$\text{time-and-a-half} = 4 \times \$28.00 \times 1.5 = \$168.00,$$

$$\text{double-time} = 2 \times \$28.00 \times 2 = \$112.00.$$

$$\text{Total} = \$1064.00 + \$168.00 + \$112.00 = \$1344.00.$$

$\therefore$ Mia's gross pay for the week is \$1344.00.

Example 4 — unscaffolded

A permanent employee at a warehouse earns a base rate of \$24.00 an hour. A casual doing the same job is paid a 25 % casual loading. Find the casual's hourly rate, and how much more the casual earns than the permanent worker for a 30 -hour week.

The casual loading adds 25 % to the base rate:

$$\text{casual rate} = \$24.00 \times 1.25 = \$30.00 \text{ per hour}.$$

For a 30-hour week,

$$\text{casual pay} = \$30.00 \times 30 = \$900.00, \text{ permanent pay} = \$24.00 \times 30 = \$720.00.$$

$$\text{The difference is } \$900.00 - \$720.00 = \$180.00.$$

$\therefore$ the casual rate is \$30.00 an hour, and over a 30-hour week the casual earns \$180.00 more than the permanent worker.

Practice questions

Scaffolded

Q1. Liam is paid \$22.50 an hour and works 76 hours in a fortnight. (a) Find his gross pay for the fortnight. (b) Find his gross yearly pay. (c) If instead he works a 38-hour week, find his gross weekly pay.

Q2. Sophie is on a salary of \$91 000 a year. (a) Find her gross weekly pay. (b) Find her gross fortnightly pay. (c) Find her gross monthly pay, correct to the nearest cent.

Q3. Noah has a base rate of \$30.00 an hour. A Saturday shift pays time-and-a-half and a Sunday shift pays double-time. (a) Find his pay for a 6-hour Saturday shift. (b) Find his pay for a 5-hour Sunday shift. (c) If he also works 8 ordinary hours during the week, find his total pay for the week.

Q4. A café pays a base rate of \$26.00 an hour, with a 25 % casual loading for casual staff. (a) Find the casual hourly rate. (b) Find a casual worker's pay for a 20-hour week. (c) How much more is this than a permanent worker earns for the same 20 hours?

Q5. Ava earns a wage of \$1240 a week. (a) Find her gross yearly pay. (b) Find her gross fortnightly pay. (c) If she works 40 hours a week, find her hourly rate.

Q6. Jackson is paid \$19.80 an hour, with time-and-a-half for every hour beyond 38 in a week. One week he works 42 hours. (a) Find his ordinary pay for the first 38 hours. (b) Find his overtime pay for the extra hours. (c) Find his total gross pay for the week.

Unscaffolded

Q7. Ethan is paid \$34.60 an hour and works a 38-hour week. Find his gross weekly pay and his gross yearly pay.

Q8. Chloe is on a salary of \$62 400 a year. Find her gross pay per week, per fortnight and per month.

Q9. A tradesperson's base rate is \$27.20 an hour. In one week she works 38 ordinary hours plus 5 hours at time-and-a-half. Find her gross pay for the week.

Q10. A supermarket pays a base rate of \$23.40 an hour with a 25 % casual loading. Find the casual hourly rate, and a casual worker's pay for a 25-hour week.

Q11. Two jobs are advertised. Job A is a salary of \$70 720 a year. Job B pays \$34.00 an hour for a 38-hour week. By finding the yearly pay for each, decide which job pays more.

Q12. Harper works a 7.6-hour shift on a public holiday, which is paid at double-time. Her base rate is \$25.80 an hour. Find her gross pay for the shift.

Q13. Oliver's weekly pay is \$1120 for a 40-hour week. (a) Find his hourly rate. (b) After a 5 % pay rise, find his new hourly rate and his new weekly pay for 40 hours.

Q14. Isla is paid a salary in 12 equal monthly instalments of \$4875. Find her yearly salary and her equivalent weekly pay.

Q15. A worker's base rate is \$21.50 an hour. In one week he works 38 ordinary hours, plus a 3-hour Saturday shift at time-and-a-half and a 4-hour Sunday shift at double-time. Find his total gross pay for the week.

Q16. Ruby earns a salary of \$54 600 a year, paid fortnightly. If she works 76 hours each fortnight, find her fortnightly pay and her effective hourly rate, correct to the nearest cent.

Q17. A permanent employee earns \$32.00 an hour for a 38-hour week. A casual doing the same hours is paid a 25 % loading but receives no paid leave. (a) Find the permanent worker's yearly pay. (b) Find the casual worker's yearly pay. (c) Find the difference between the two yearly amounts.

Q18. A part-time worker is paid \$29.50 an hour and works 22 hours in the first week, 27 hours in the second and 19 hours in the third. (a) Find the total gross pay over the three weeks. (b) Find the average weekly pay, correct to the nearest cent.

Answers

Q1. (a) \$1710. (b) \$44 460. (c) \$855. **Q2.** (a) \$1750. (b) \$3500. (c) \$7583.33. **Q3.** (a) \$270. (b) \$300. (c) \$810. **Q4.** (a) \$32.50. (b) \$650. (c) \$130. **Q5.** (a) \$64 480. (b) \$2480. (c) \$31.00. **Q6.** (a) \$752.40. (b) \$118.80. (c) \$871.20. **Q7.** \$1314.80 a week; \$68 369.60 a year. **Q8.** \$1200 a week; \$2400 a fortnight; \$5200 a month. **Q9.** \$1237.60. **Q10.** \$29.25 an hour; \$731.25 for the week. **Q11.** Job A \$70 720; Job B \$67 184 — Job A pays more. **Q12.** \$392.16. **Q13.** (a) \$28.00. (b) \$29.40 an hour; \$1176 a week. **Q14.** \$58 500 a year; \$1125 a week. **Q15.** \$1085.75. **Q16.** \$2100 a fortnight; \$27.63 an hour. **Q17.** (a) \$63 232. (b) \$79 040. (c) \$15 808. **Q18.** (a) \$2006. (b) \$668.67.

Fully-worked solutions

Q1. (a) Fortnightly pay = $\$22.50 \times 76 = \1710 . (b) Yearly pay = $\$1710 \times 26 = \$44\,460$ (there are 26 fortnights in a year). (c) Weekly pay = $\$22.50 \times 38 = \855 .

Q2. (a) Weekly = $\frac{\$91\,000}{52} = \1750 . (b) Fortnightly = $\frac{\$91\,000}{26} = \3500 . (c) Monthly = $\frac{\$91\,000}{12} = \$7583.333\dots = \$7583.33$ (to the nearest cent).

Q3. (a) Saturday (time-and-a-half): $6 \times \$30.00 \times 1.5 = \270 . (b) Sunday (double-time): $5 \times \$30.00 \times 2 = \300 . (c) Ordinary hours: $8 \times \$30.00 = \240 . Total = $\$240 + \$270 + \$300 = \810 .

Q4. (a) Casual rate = $\$26.00 \times 1.25 = \32.50 an hour. (b) Casual week = $\$32.50 \times 20 = \650 . (c) Permanent week = $\$26.00 \times 20 = \520 , so the casual earns $\$650 - \$520 = \$130$ more.

Q5. (a) Yearly = $\$1240 \times 52 = \$64\,480$. (b) Fortnightly = $\$1240 \times 2 = \2480 (a fortnight is two weeks). (c) Hourly rate = $\frac{\$1240}{40} = \31.00 .

Q6. (a) Ordinary pay = $\$19.80 \times 38 = \752.40 . (b) Overtime hours = $42 - 38 = 4$; overtime pay = $4 \times \$19.80 \times 1.5 = \118.80 . (c) Total = $\$752.40 + \$118.80 = \$871.20$.

Q7. Weekly pay = $\$34.60 \times 38 = \1314.80 ; yearly pay = $\$1314.80 \times 52 = \$68\,369.60$.

Q8. Weekly = $\frac{\$62\,400}{52} = \1200 ; fortnightly = $\frac{\$62\,400}{26} = \2400 ; monthly = $\frac{\$62\,400}{12} = \5200 .

Q9. Ordinary pay = $\$27.20 \times 38 = \1033.60 . Overtime = $5 \times \$27.20 \times 1.5 = \204.00 . Total = $\$1033.60 + \$204.00 = \$1237.60$.

Q10. Casual rate = $\$23.40 \times 1.25 = \29.25 an hour. Week's pay = $\$29.25 \times 25 = \731.25 .

Q11. Job B weekly pay = $\$34.00 \times 38 = \1292 , so Job B yearly = $\$1292 \times 52 = \$67\,184$. Job A is \$70 720 a year. Since $\$70\,720 > \$67\,184$, **Job A pays more** (by \$3536 a year).

Q12. Public-holiday pay (double-time): $7.6 \times \$25.80 \times 2 = \392.16 .

Q13. (a) Hourly rate = $\frac{\$1120}{40} = \28.00 . (b) A 5% rise multiplies the rate by 1.05: new rate = $\$28.00 \times 1.05 = \29.40 . New weekly pay = $\$29.40 \times 40 = \1176 .

Q14. Yearly salary = $\$4875 \times 12 = \$58\,500$. Weekly pay = $\frac{\$58\,500}{52} = \1125 .

Q15. Ordinary: $38 \times \$21.50 = \817.00 . Saturday (time-and-a-half): $3 \times \$21.50 \times 1.5 = \96.75 . Sunday (double-time): $4 \times \$21.50 \times 2 = \172.00 . Total = $\$817.00 + \$96.75 + \$172.00 = \1085.75 .

Q16. Fortnightly pay = $\frac{\$54\,600}{26} = \2100 . Effective hourly rate = $\frac{\$2100}{76} = \$27.631\dots = \$27.63$ (to the nearest cent).

Q17. (a) Permanent weekly = $\$32.00 \times 38 = \1216 , so yearly = $\$1216 \times 52 = \$63\,232$. (b) Casual rate = $\$32.00 \times 1.25 = \40.00 ; casual weekly = $\$40.00 \times 38 = \1520 , so yearly = $\$1520 \times 52 = \$79\,040$. (c) Difference = $\$79\,040 - \$63\,232 = \$15\,808$.

Q18. (a) Week 1: $\$29.50 \times 22 = \649.00 ; week 2: $\$29.50 \times 27 = \796.50 ; week 3: $\$29.50 \times 19 = \560.50 . Total = $\$649.00 + \$796.50 + \$560.50 = \2006.00 . (b) Average weekly pay = $\frac{\$2006.00}{3} = \$668.666\dots = \$668.67$ (to the nearest cent).

Theory

Most Australian jobs are covered by an **award** or an **enterprise agreement** — a legal document that sets out the minimum pay for the work. Rather than a single rate, an award lists a **pay scale**: a table of rates that depends on the employee's **classification level** (how skilled or senior the role is) and sometimes on their years of experience. Being able to read a pay scale, and to compare the rates in it, is an everyday skill for anyone starting work.

Classification levels and pay points.

A **classification level** describes the type of work — for example a Level 1 employee may be an entry-level assistant, while a Level 5 employee supervises others. Within a level there can also be **pay points** (sometimes called increments) that rise with each year of service. A worker usually starts at the lowest point and moves up one point each year until they reach the top of their level.

Reading a pay-scale table.

In a pay-scale table each **row** is usually a classification level (or pay point) and each **column** is a type of rate — for example the hourly rate, the weekly rate or the annual salary. To find a rate you read across from the correct level to the correct column.

Level	Hourly rate (\$)
1	24.20
2	24.90
3	25.60
4	26.40

For example, a Level 2 employee in this scale earns \$24.90 per hour, so a 38-hour week pays $38 \times \$24.90 = \946.20 .

Moving up the scale.

When a worker moves to a higher level or pay point, their pay rises. The rise can be described in two ways: as a **dollar increase** (the new rate minus the old rate) or as a **percentage increase**:

$$\text{percentage increase} = \frac{\text{increase}}{\text{original rate}} \times 100\%.$$

Junior and apprentice rates.

Employees under 21 are often paid a **junior rate**, set as a **percentage of the adult (21-and-over) rate**. A typical scale is 50% at age 16, rising by about 10 percentage points each year to 100% at age 21. An **apprentice** is likewise paid a percentage of the qualified tradesperson's rate, rising each year of the apprenticeship. To find a junior or apprentice rate, multiply the adult rate by the percentage written as a decimal:

$$\text{junior rate} = \text{adult rate} \times \frac{\text{percentage}}{100}.$$

Comparing pay.

To compare two rates, find the **dollar difference** (subtract) or the **percentage difference** (divide the difference by the base rate and multiply by 100%). Comparing as a percentage is useful when the two amounts are very different in size.

The gender pay gap.

The **gender pay gap** compares the average earnings of men and of women across a workplace, industry or the whole economy. This book uses the term in the sense given by the Australian Bureau of Statistics (ABS, 2024): the difference between the averages, written as a **percentage of men’s average earnings**:

$$\text{gender pay gap} = \frac{\text{men's average} - \text{women's average}}{\text{men's average}} \times 100\%.$$

Other definitions exist and are not interchangeable with this one. The Workplace Gender Equality Agency (WGEA, 2024), for example, measures total pay including bonuses and overtime, and also reports the gap from the **median** — the earnings of the worker exactly in the middle when everyone is ranked by pay — rather than the average. Each choice of definition gives a different figure for the same people in the same year, so a published gap only means something once its definition is stated. Every question in this section uses the definition above, and is answerable on that definition alone.

A gap of 0 % would mean equal average pay. The gap is an *average* across many people — it does not mean every man is paid more than every woman, and it does not on its own explain why the averages differ.

Worked examples

Example 1 — scaffolded

A café uses the hourly pay scale in the table above (Level 1 \$24.20, Level 2 \$24.90, Level 3 \$25.60, Level 4 \$26.40). Find the hourly rate of a Level 3 employee, and the pay for a 38-hour week at that level.

Working	Comment
Read across from Level 3 to the hourly-rate column: \$25.60.	Each row is a level; read to the rate column.
Weekly pay = $38 \times \$25.60$.	Weekly pay = hours $\times$ hourly rate.
$38 \times 25.60 = \$972.80$.	A Level 3 worker earns \$972.80 for the week.

Example 2 — scaffolded

The adult (21-and-over) rate for a shop assistant is \$26.00 per hour. A 17-year-old is paid the junior rate of 60 % of the adult rate. Find the junior hourly rate, and the pay for a 15-hour week.

Working	Comment
Junior rate = $\$26.00 \times \frac{60}{100} = \26.00×0.60 .	Junior rate = adult rate $\times$ the percentage as a decimal.
= \$15.60 per hour.	The 17-year-old earns \$15.60 an hour.
Weekly pay = $15 \times \$15.60 = \234.00 .	Hours $\times$ junior hourly rate.

Example 3 — unscaffolded

A worker on an enterprise agreement moves from pay point 2, earning \$1010.00 per week, to pay point 3, earning \$1045.35 per week. Find the dollar increase and the percentage increase in weekly pay, correct to one decimal place.

The dollar increase is the new rate minus the old rate:

$$\$1045.35 - \$1010.00 = \$35.35.$$

The percentage increase compares this rise with the original rate:

$$\frac{35.35}{1010.00} \times 100\% = 3.5\%.$$

$\therefore$ moving to pay point 3 gives a weekly rise of \$35.35, an increase of 3.5 %.

Example 4 — unscaffolded

In one industry the average full-time weekly earnings are \$1650 for men and \$1450 for women. Find the gender pay gap in dollars, and as a percentage of men's average earnings (to one decimal place).

The dollar gap is the difference in the averages:

$$\$1650 - \$1450 = \$200.$$

As a percentage of men's average earnings,

$$\frac{200}{1650} \times 100\% = 12.1\% (1 \text{ d.p.}).$$

$\therefore$ the gender pay gap is \$200 per week, or about 12.1 % of men's average earnings.

Practice questions

Scaffolded

Q1. A hospitality award uses the hourly pay scale below.

Level	Hourly rate (\$)
1	25.00
2	25.80
3	26.55
4	27.90

- (a) State the hourly rate for a Level 2 employee.
- (b) Find the weekly pay for a Level 2 employee who works 30 hours.
- (c) How much more per hour does a Level 4 employee earn than a Level 1 employee?

Q2. The adult hourly rate for a supermarket role is \$24.00. Juniors are paid 50 % of it at age 16, 60 % at age 17 and 70 % at age 18. (a) Find the hourly rate for a 16-year-old. (b) Find the hourly rate for an 18-year-old. (c) Find the weekly pay for an 18-year-old who works 12 hours.

Q3. After a pay review a worker's weekly wage rises from \$1200 to \$1260. (a) Find the dollar increase. (b) Find the percentage increase. (c) The following year the wage rises by a further 3 %. Find the new weekly wage.

Q4. In a company the average full-time weekly earnings are \$1800 for men and \$1620 for women. (a) Find the gender pay gap in dollars. (b) Express the gap as a percentage of men's average earnings. (c) Over a 52-week year, how much more does the average man earn than the average woman?

Q5. A pay scale lists four pay points by years of service.

Pay point	Weekly rate (\$)
1	985
2	1020
3	1060
4	1105

- (a) State the weekly rate at pay point 3.
- (b) Find the annual salary at pay point 3, assuming 52 weeks.
- (c) Find the increase from pay point 1 to pay point 4 as a percentage of the pay-point-1 rate, correct to one decimal place.

Q6. In a workplace a Level 5 employee earns \$31.50 per hour and a Level 3 employee earns \$28.00 per hour. (a) Find the difference in their hourly rates. (b) Express the Level 5 rate as a percentage of the Level 3 rate, correct to one decimal place. (c) If both work 38 hours, find the difference in their weekly pay.

Unscaffolded

Q7. The adult hourly rate for a role is \$27.20. A 19-year-old is paid 80 % of the adult rate. Find the 19-year-old's pay for a 25-hour week.

Q8. A Level 6 employee is paid \$29.80 per hour. Find the annual pay for a 38-hour week worked over 52 weeks of the year.

Q9. A worker's weekly rate rises from \$1044.00 to \$1080.00 when they reach the next pay point. Find the percentage increase, correct to one decimal place.

Q10. The average annual earnings in a profession are \$92 000 for men and \$80 500 for women. (a) Find the gender pay gap in dollars. (b) Express the gap as a percentage of men's average earnings, correct to one decimal place. (c) Explain what this percentage tells you, in one sentence.

Q11. In a store the adult hourly rate is \$25.00. A 17-year-old is paid 60 % of it and an 18-year-old 70 %. How much more does the 18-year-old earn than the 17-year-old in a 38-hour week?

Q12. A first-year apprentice is paid 55 % of the qualified tradesperson's rate of \$32.00 per hour. Find the apprentice's hourly rate and their pay for a 36-hour week.

Q13. After a 4 % pay rise a worker earns \$1300.00 per week. Find the worker's weekly wage before the rise.

Q14. Two industries report their average full-time weekly earnings.

Industry	Men (\$)	Women (\$)
A	1700	1530
B	2000	1750

Find the gender pay gap of each industry as a percentage of men's earnings, and state which industry has the larger relative gap.

Q15. A small team has one employee at each of three levels, paid \$26.00, \$28.00 and \$30.00 per hour. Each works a 38-hour week. Find the total weekly wage bill for the three employees.

Q16. A 16-year-old is paid \$13.20 per hour for a role whose adult rate is \$24.00 per hour. What percentage of the adult rate is the junior's pay?

Q17. A worker at pay point 1 earns \$990.00 per week. On reaching pay point 2 their weekly rate rises by 3.5 %. (a) Find the pay-point-2 weekly rate. (b) Find the annual salary at pay point 2, assuming 52 weeks.

Q18. A country's gender pay gap is compared over time. In 2015 the average weekly earnings were \$1500 for men and \$1250 for women; in 2025 they were \$1800 for men and \$1600 for women. (a) Find the pay gap as a percentage of men's earnings in each year, correct to one decimal place. (b) State whether the relative gender pay gap narrowed or widened over the ten years.

Answers

Q1. (a) \$25.80. (b) \$774.00. (c) \$2.90. **Q2.** (a) \$12.00. (b) \$16.80. (c) \$201.60. **Q3.** (a) \$60. (b) 5%. (c) \$1297.80. **Q4.** (a) \$180. (b) 10%. (c) \$9360. **Q5.** (a) \$1060. (b) \$55 120. (c) 12.2%. **Q6.** (a) \$3.50. (b) 112.5%. (c) \$133.00. **Q7.** \$544.00. **Q8.** \$58 884.80. **Q9.** 3.4%. **Q10.** (a) \$11 500. (b) 12.5%. (c) on average, women in this profession earn about 12.5% less than men. **Q11.** \$95.00. **Q12.** \$17.60 per hour; \$633.60 per week. **Q13.** \$1250.00. **Q14.** A: 10%; B: 12.5%; industry B has the larger relative gap. **Q15.** \$3192.00. **Q16.** 55%. **Q17.** (a) \$1024.65. (b) \$53 281.80. **Q18.** (a) 2015: 16.7%; 2025: 11.1%. (b) it narrowed.

Fully-worked solutions

Q1. (a) Reading across from Level 2: \$25.80 per hour. (b) Weekly pay = $30 \times \$25.80 = \774.00 . (c) Level 4 is \$27.90 and Level 1 is \$25.00, so the difference is $\$27.90 - \$25.00 = \$2.90$ per hour.

Q2. (a) 16-year-old: $\$24.00 \times 0.50 = \12.00 per hour. (b) 18-year-old: $\$24.00 \times 0.70 = \16.80 per hour. (c) Weekly pay = $12 \times \$16.80 = \201.60 .

Q3. (a) Increase = $\$1260 - \$1200 = \$60$. (b) Percentage increase = $\frac{60}{1200} \times 100\% = 5\%$. (c) A further 3% rise: $\$1260 \times 1.03 = \1297.80 .

Q4. (a) Gap = $\$1800 - \$1620 = \$180$. (b) As a percentage of men's earnings: $\frac{180}{1800} \times 100\% = 10\%$. (c) Over 52 weeks: $\$180 \times 52 = \9360 .

Q5. (a) Reading across from pay point 3: \$1060 per week. (b) Annual salary = $\$1060 \times 52 = \$55\,120$. (c) Increase = $\$1105 - \$985 = \$120$, so $\frac{120}{985} \times 100\% = 12.2\%$ (1 d.p.).

Q6. (a) Difference = $\$31.50 - \$28.00 = \$3.50$ per hour. (b) $\frac{31.50}{28.00} \times 100\% = 112.5\%$. (c) The weekly difference is $\$3.50 \times 38 = \133.00 .

Q7. The junior rate is $\$27.20 \times 0.80 = \21.76 per hour, so a 25-hour week pays $25 \times \$21.76 = \544.00 .

Q8. The weekly pay is $38 \times \$29.80 = \1132.40 , so the annual pay is $\$1132.40 \times 52 = \$58\,884.80$.

Q9. Increase = $\$1080.00 - \$1044.00 = \$36.00$, so the percentage increase is $\frac{36}{1044} \times 100\% = 3.4\%$ (1 d.p.).

Q10. (a) Gap = $\$92\,000 - \$80\,500 = \$11\,500$. (b) $\frac{11\,500}{92\,000} \times 100\% = 12.5\%$. (c) On average, women in this profession earn about 12.5% less per year than men.

Q11. The 17-year-old earns $\$25.00 \times 0.60 = \15.00 per hour and the 18-year-old $\$25.00 \times 0.70 = \17.50 per hour, a difference of \$2.50 per hour. Over 38 hours that is $\$2.50 \times 38 = \95.00 .

Q12. Apprentice rate = $\$32.00 \times 0.55 = \17.60 per hour, so a 36-hour week pays $36 \times \$17.60 = \633.60 .

Q13. A 4% rise multiplies the old wage by 1.04, so the old wage is $\frac{\$1300.00}{1.04} = \1250.00 .

Q14. Industry A: $\frac{1700 - 1530}{1700} \times 100\% = \frac{170}{1700} \times 100\% = 10\%$. Industry B:

$\frac{2000 - 1750}{2000} \times 100\% = \frac{250}{2000} \times 100\% = 12.5\%$. Industry B has the larger relative gender pay gap.

Q15. Each employee works 38 hours, so the weekly bill is
 $38 \times (\$26.00 + \$28.00 + \$30.00) = 38 \times \$84.00 = \$3192.00.$

Q16. As a percentage of the adult rate: $\frac{13.20}{24.00} \times 100\% = 55\%.$

Q17. (a) A 3.5% rise multiplies by 1.035: $\$990.00 \times 1.035 = \1024.65 per week. (b) Annual salary
 $= \$1024.65 \times 52 = \$53\,281.80.$

Q18. (a) 2015: $\frac{1500 - 1250}{1500} \times 100\% = \frac{250}{1500} \times 100\% = 16.7\%$ (1 d.p.). 2025:

$\frac{1800 - 1600}{1800} \times 100\% = \frac{200}{1800} \times 100\% = 11.1\%$ (1 d.p.). (b) The relative gap fell from 16.7% to 11.1%, so it
narrowed over the ten years.

Chapter 7 Income and banking — 7E Payslips

Theory

Every time you are paid, your employer must give you a **payslip** — a record of what you earned for that pay period and what has been taken out. Being able to read a payslip and check it is correct is an essential everyday skill: it lets you confirm you have been paid the right amount, understand your tax and superannuation, and plan a budget around your **take-home pay**.

The pay period.

A payslip covers one **pay period** — most often a **week**, a **fortnight** (two weeks) or a **month**. All the amounts on the slip are for that one period. To compare jobs paid over different periods you convert to a common period; for a full year there are 52 weeks, 26 fortnights or 12 months.

Gross pay.

Gross pay is the total amount earned *before* anything is taken out. It is built from

- **ordinary pay** = ordinary hours $\times$ hourly rate;
- **overtime**, often paid at a higher rate such as time-and-a-half ($1.5 \times$ the rate);
- **allowances** — extra payments for things like travel, tools, uniforms or first-aid duties.

So gross pay = ordinary pay + overtime + allowances.

Deductions.

Deductions are amounts subtracted from the gross pay. The main one is **PAYG tax** (“pay as you go” income tax), which your employer withholds and sends to the ATO on your behalf. Other deductions can include union fees, private health insurance, salary sacrifice or social-club fees. The **total deductions** is their sum.

Net pay.

Net pay (or **take-home pay**) is what actually reaches your bank account:

$$\text{net pay} = \text{gross pay} - \text{total deductions}.$$

Rearranging this also lets you find a missing figure — for example total deductions = gross pay – net pay.

Superannuation.

Superannuation (“super”) is money set aside for your retirement. By law, your employer pays it **on top of** your wage, straight into your super fund. The rate is set by the superannuation guarantee and has been **12% of your ordinary earnings** since 1 July 2025. Super is shown on the payslip so you can check it, but it is **not** deducted from your take-home pay.

Year-to-date (YTD) figures.

Many payslips also show **year-to-date (YTD)** totals — the running totals of gross pay, tax and super since the start of the financial year (1 July). Each pay period’s amounts are added to the YTD totals.

A sample payslip.

Item	Amount (\$)
Ordinary pay (76 h at \$28.00/h)	2128.00
Overtime (4 h at \$42.00/h)	168.00
Travel allowance	60.00
Gross pay	2356.00
PAYG tax withheld	472.00

Item	Amount (\$)
Union fee	18.00
Total deductions	490.00
Net pay (take-home)	1866.00
Superannuation (12% of ordinary, employer-paid)	255.36

Here gross = $2128 + 168 + 60 = \$2356$, net = $2356 - 490 = \$1866$, and the super = $0.12 \times 2128 = \$255.36$ is paid by the employer into the fund, not taken from the \$1866 take-home pay.

Worked examples

Example 1 — scaffolded

A fortnightly payslip lists 72 ordinary hours at \$26.50 per hour, overtime of \$205.00, and a tool allowance of \$40.00. The total deductions are \$512.00. Find the gross pay and the net pay.

Working	Comment
Ordinary pay = $72 \times 26.50 = \$1908.00$.	Ordinary hours $\times$ hourly rate.
Gross pay = $1908.00 + 205.00 + 40.00 = \2153.00 .	Ordinary + overtime + allowance.
Net pay = $2153.00 - 512.00 = \$1641.00$.	Net = gross - total deductions.

Example 2 — scaffolded

Priya's weekly payslip shows a gross pay of \$1320.00 with deductions of PAYG tax \$268.00 and health insurance \$34.00. It also shows superannuation of \$158.40. Find her total deductions and her net pay, and state whether the super is taken out of her take-home pay.

Working	Comment
Total deductions = $268.00 + 34.00 = \$302.00$.	Add the amounts subtracted (tax + health).
Net pay = $1320.00 - 302.00 = \$1018.00$.	Net = gross - total deductions.
The \$158.40 super is not subtracted.	Super is paid by the employer into her fund, on top of her wage.

Example 3 — unscaffolded

A monthly payslip shows a gross pay of \$5240.00 and a net pay of \$4022.00. The only deductions are PAYG tax and a \$48.00 union fee. Find the total deductions and the amount of PAYG tax withheld.

The take-home pay is the gross less all deductions, so the total deductions are the gap between gross and net:

$$\text{total deductions} = 5240.00 - 4022.00 = \$1218.00.$$

The deductions are the tax plus the \$48.00 union fee, so

$$\text{PAYG tax} = 1218.00 - 48.00 = \$1170.00.$$

$\therefore$ the total deductions are \$1218.00, of which \$1170.00 is PAYG tax.

Example 4 — unscaffolded

Before this pay, a worker's payslip shows year-to-date (YTD) gross of \$11 500 and YTD PAYG tax of \$2228, over 5 fortnightly pays. This fortnight the worker earns a gross of \$2356 with \$472 of tax withheld. Find the new YTD gross, the new YTD tax, and the average tax withheld per fortnight so far.

Add this fortnight's amounts to the running totals:

$$\text{new YTD gross} = 11\,500 + 2356 = \$13\,856, \text{ new YTD tax} = 2228 + 472 = \$2700.$$



Including this pay the worker has now been paid $5 + 1 = 6$ times, so

$$\text{average tax per fortnight} = \frac{2700}{6} = \$450.$$

$\therefore$ the new YTD gross is \$13 856, the new YTD tax is \$2700, and on average \$450 of tax has been withheld each fortnight.

Practice questions

Scaffolded

Q1. A fortnightly payslip lists 70 ordinary hours at \$26.00 per hour, overtime of \$195.00 and a uniform allowance of \$45.00. (a) Find the ordinary pay. (b) Find the gross pay. (c) If the total deductions are \$498.00, find the net pay.

Q2. Amara's weekly payslip shows a gross pay of \$1240.00 with deductions of PAYG tax \$236.00 and health insurance \$29.00. (a) Find the total deductions. (b) Find the net pay. (c) The payslip also shows superannuation of \$148.80. State whether this is subtracted from her net pay, and explain why.

Q3. A monthly payslip shows a gross pay of \$5400.00 and a net pay of \$4158.00. (a) Find the total deductions for the month. (b) The only deductions are PAYG tax and a \$60.00 union fee. Find the PAYG tax. (c) Express the net pay as a percentage of the gross pay, to the nearest whole per cent.

Q4. Superannuation is paid by the employer at 12 % of a worker's ordinary earnings. (a) A worker's ordinary earnings for a fortnight are \$2400.00. Find the super contribution. (b) Another worker's ordinary earnings are \$3000.00. Find their super contribution. (c) State who pays this super and where it goes.

Q5. A payslip shows a gross pay of \$3120.00 and deductions of PAYG tax \$624.00, salary sacrifice \$150.00 and a social-club fee. The net pay is \$2331.00. (a) Find the total deductions. (b) Find the social-club fee. (c) Express the PAYG tax as a percentage of the gross pay.

Q6. Part of a fortnightly payslip is shown.

Item	Amount (\$)
Ordinary pay (72 h at \$25.50/h)	
Overtime (5 h at \$38.25/h)	
Gross pay	
PAYG tax	430.00
Net pay	

- (a) Find the ordinary pay.
- (b) Find the overtime pay and the gross pay.
- (c) Find the net pay.

Unscaffolded

Q7. A fortnightly payslip lists 76 ordinary hours at \$27.40 per hour and a first-aid allowance of \$38.00, with total deductions of \$455.00. Find the gross pay and the net pay.

Q8. A weekly payslip shows a gross pay of \$1380.00, with deductions of PAYG tax \$290.00 and a union fee of \$12.50. Find the net pay.

Q9. A worker's net weekly pay is \$985.00 after deductions of PAYG tax \$255.00 and a \$20.00 social-club fee. Find the gross pay.

Q10. A worker earns a gross pay of \$2100.00 per fortnight. Assuming 26 fortnightly pays in a year, find the annual gross pay and the equivalent monthly gross pay ($\text{annual} \div 12$).

- Q11.** A worker's ordinary earnings this month are \$4800.00 and superannuation is paid at 12 %. Find the super contribution and the total cost to the employer (ordinary earnings plus super).
- Q12.** After several pays a worker's payslip shows YTD gross \$28 400 and YTD PAYG tax \$5680. This fortnight adds a gross of \$2260 and tax of \$452. Find the new YTD gross and the new YTD tax, and the percentage of the new YTD gross that has been withheld as tax.
- Q13.** A fortnightly payslip shows a gross pay of \$2480.00 and a net pay of \$1947.00. The deductions are PAYG tax \$478.00 and a health-fund amount. Find the health-fund deduction.
- Q14.** A worker's fortnightly payslip shows 76 ordinary hours at \$24.00 per hour and 6 overtime hours paid at time-and-a-half. The total deductions are \$520.00. Find the gross pay and the net pay.
- Q15.** A monthly payslip shows a gross pay of \$6200.00 and PAYG tax of \$1450.00. (a) Find the percentage of the gross pay withheld as tax, to one decimal place. (b) There are also other deductions of \$180.00. Find the net pay.
- Q16.** Bilal is offered the same job at either \$1150.00 gross per week or \$2350.00 gross per fortnight. Using 52 weeks and 26 fortnights in a year, find the annual gross pay for each offer and state which is better, and by how much.
- Q17.** A payslip shows a gross pay of \$2590.00, superannuation of \$264.00 (employer-paid), a union fee of \$22.00, and a net pay of \$2044.00. Find the amount of PAYG tax withheld.
- Q18.** A worker's payslip after 8 fortnightly pays shows a YTD gross of \$18 960. (a) Find the average gross pay per fortnight. (b) If this average continues for all 26 fortnights of the year, estimate the annual gross pay.
-

Answers

Q1. (a) \$1820.00. (b) \$2060.00. (c) \$1562.00. **Q2.** (a) \$265.00. (b) \$975.00. (c) No — super is an employer contribution paid into her fund, not taken from take-home pay. **Q3.** (a) \$1242.00. (b) \$1182.00. (c) 77 %. **Q4.** (a) \$288.00. (b) \$360.00. (c) The employer pays it, into the worker's superannuation fund. **Q5.** (a) \$789.00. (b) \$15.00. (c) 20 %. **Q6.** (a) \$1836.00. (b) overtime \$191.25, gross \$2027.25. (c) \$1597.25. **Q7.** gross \$2120.40, net \$1665.40. **Q8.** \$1077.50. **Q9.** \$1260.00. **Q10.** annual \$54 600.00, monthly \$4550.00. **Q11.** super \$576.00, total cost \$5376.00. **Q12.** YTD gross \$30 660, YTD tax \$6132, tax is 20 % of YTD gross. **Q13.** \$55.00. **Q14.** gross \$2040.00, net \$1520.00. **Q15.** (a) 23.4 %. (b) \$4570.00. **Q16.** weekly offer \$59 800, fortnightly offer \$61 100; the fortnightly offer is better by \$1300. **Q17.** \$524.00. **Q18.** (a) \$2370.00. (b) \$61 620.00.

Fully-worked solutions

Q1. (a) Ordinary pay = $70 \times 26.00 = \$1820.00$. (b) Gross pay = $1820.00 + 195.00 + 45.00 = \2060.00 . (c) Net pay = $2060.00 - 498.00 = \$1562.00$.

Q2. (a) Total deductions = $236.00 + 29.00 = \$265.00$. (b) Net pay = $1240.00 - 265.00 = \$975.00$. (c) No. Superannuation is paid by the employer **on top of** the wage, straight into Amara's super fund, so the \$148.80 is not subtracted from her \$975.00 take-home pay.

Q3. (a) Total deductions = gross – net = $5400.00 - 4158.00 = \$1242.00$. (b) PAYG tax = $1242.00 - 60.00 = \$1182.00$. (c) $\frac{4158}{5400} \times 100\% = 77\%$ (to the nearest whole per cent).

Q4. (a) Super = $0.12 \times 2400.00 = \$288.00$. (b) Super = $0.12 \times 3000.00 = \$360.00$. (c) The **employer** pays the super, into the worker's **superannuation fund** (not to the worker directly).

Q5. (a) Total deductions = $3120.00 - 2331.00 = \$789.00$. (b) Social-club fee = $789.00 - 624.00 - 150.00 = \15.00 . (c) $\frac{624}{3120} \times 100\% = 20\%$.

Q6. (a) Ordinary pay = $72 \times 25.50 = \$1836.00$. (b) Overtime = $5 \times 38.25 = \$191.25$; gross pay = $1836.00 + 191.25 = \$2027.25$. (c) Net pay = $2027.25 - 430.00 = \$1597.25$.

Q7. Ordinary pay = $76 \times 27.40 = \$2082.40$. Gross pay = $2082.40 + 38.00 = \$2120.40$. Net pay = $2120.40 - 455.00 = \$1665.40$.

Q8. Total deductions = $290.00 + 12.50 = \$302.50$. Net pay = $1380.00 - 302.50 = \$1077.50$.

Q9. The gross pay is the net pay plus all the deductions: gross = $985.00 + 255.00 + 20.00 = \1260.00 .

Q10. Annual gross = $2100.00 \times 26 = \$54\,600.00$. Monthly gross = $54\,600.00 \div 12 = \$4550.00$.

Q11. Super = $0.12 \times 4800.00 = \$576.00$. Total cost to the employer = $4800.00 + 576.00 = \$5376.00$.

Q12. New YTD gross = $28\,400 + 2260 = \$30\,660$. New YTD tax = $5680 + 452 = \$6132$. Percentage withheld = $\frac{6132}{30\,660} \times 100\% = 20\%$.

Q13. Total deductions = $2480.00 - 1947.00 = \$533.00$. The health-fund deduction = $533.00 - 478.00 = \$55.00$.

Q14. The overtime rate is $1.5 \times 24.00 = \$36.00$ per hour. Ordinary pay = $76 \times 24.00 = \$1824.00$; overtime = $6 \times 36.00 = \$216.00$; gross pay = $1824.00 + 216.00 = \$2040.00$. Net pay = $2040.00 - 520.00 = \$1520.00$.

Q15. (a) $\frac{1450}{6200} \times 100\% = 23.4\%$ (to 1 d.p.). (b) Net pay = $6200.00 - 1450.00 - 180.00 = \4570.00 .

Q16. Weekly offer: $1150.00 \times 52 = \$59\,800$ a year. Fortnightly offer: $2350.00 \times 26 = \$61\,100$ a year. The fortnightly offer is larger by $61\,100 - 59\,800 = \$1\,300$, so it is the better offer.

Q17. The deductions are the gap between gross and net: total deductions = $2590.00 - 2044.00 = \$546.00$. The super (\$264.00) is **not** a deduction, so the deductions are the union fee plus the tax:
PAYG tax = $546.00 - 22.00 = \$524.00$.

Q18. (a) Average gross per fortnight = $18\,960 \div 8 = \$2\,370.00$. (b) Estimated annual gross
= $2\,370.00 \times 26 = \$61\,620.00$.

Chapter 7 Income and banking — 7F Types of employment

Theory

People are employed in different ways, and the type of employment affects both how much someone is paid **per hour** and what else they receive, such as **paid leave** and **job security**. This section looks at the main types of employment, the **casual loading**, **leave entitlements**, and how to compare two job offers fairly.

Types of employment.

Type	Hours	Paid leave?	Job security
Full-time	ongoing, about 38 hours a week	Yes — annual and sick leave	High
Part-time	ongoing, set hours fewer than full-time	Yes — pro-rata	High
Casual	irregular, no guaranteed hours	No paid leave	Low
Fixed-term (contract)	set hours, but the job ends on a set date	Usually, pro-rata	Medium

A **permanent** (ongoing) job continues until the worker resigns or is dismissed; a **fixed-term** job ends automatically on an agreed date.

Casual loading.

A casual worker gets no paid annual or sick leave and can be given very little notice, so they are paid a **casual loading** — an extra percentage added to the base hourly rate to make up for those missing entitlements. A common loading is 25 %, so

$$\text{casual rate} = \text{base rate} \times (1 + \text{loading}) = \text{base rate} \times 1.25.$$

To work **backwards** from a casual rate to the base rate, divide: $\text{base rate} = \text{casual rate} \div 1.25$.

Leave entitlements.

A full-time employee earns **4 weeks (20 days) of paid annual leave** and about **10 days of paid personal/sick leave** each year. One ordinary working day is $38 \div 5 = 7.6$ hours, so 4 weeks of annual leave is $4 \times 38 = 152$ hours.

A part-time worker earns leave **pro-rata** — the full-time entitlement scaled by their share of full-time hours:

$$\text{pro-rata leave} = \text{full-time leave} \times \frac{\text{their weekly hours}}{\text{full-time weekly hours}}.$$

Leave builds up gradually as you work. Annual leave accrues at $\frac{4}{52} = \frac{1}{13}$ of the ordinary hours worked, because 4 weeks is $1/13$ of the 52 weeks in a year.

Comparing job offers.

A casual job usually pays a higher hourly rate (because of the loading), but a permanent job adds paid leave, paid sick days and more security. To compare two offers fairly, work out the **total pay over a full year** for the same amount of time off, then weigh up the paid leave and security the permanent job also provides.

Worked examples

Example 1 — scaffolded

A café pays a base rate of \$ 24.80 per hour. Casual staff receive a 25 % casual loading. Find the casual hourly rate, the pay for a 6-hour casual shift, and how much of that shift pay is the loading.

Working	Comment
Casual rate = $24.80 \times 1.25 = \$ 31.00$ per hour.	Add 25 % by multiplying by 1.25.
Shift pay = $31.00 \times 6 = \$ 186.00$.	Casual rate $\times$ hours worked.
Base pay would be $24.80 \times 6 = \$ 148.80$; loading = $186.00 - 148.80 = \$ 37.20$.	The loading is the extra above base pay.

Example 2 — scaffolded

A full-time employee works 38 hours a week and is entitled to 4 weeks of paid annual leave each year. Taking one working day as 7.6 hours, find the annual leave in hours, in days, and the hours used if they take a 5-day holiday.

Working	Comment
Annual leave = $4 \times 38 = 152$ hours.	4 weeks at 38 hours per week.
In days: $152 \div 7.6 = 20$ days.	One ordinary day is 7.6 hours.
A 5-day holiday uses $5 \times 7.6 = 38$ hours.	Same as one full working week.

Example 3 — unscaffolded

Sam is offered the same job on two bases: as a **casual** at \$ 33.00 per hour with no paid leave, or as a **permanent** worker at \$ 27.50 per hour with 4 weeks of paid annual leave. Both involve 38 hours a week, and Sam wants 4 weeks off each year. Compare the annual pay.

As a permanent worker Sam is paid for all 52 weeks (the 48 weeks worked plus 4 weeks of paid leave):

$$52 \times 38 \times 27.50 = \$ 54\,340.$$

As a casual Sam is only paid while working, so the 4 weeks off are unpaid — that is 48 paid weeks:

$$48 \times 38 \times 33.00 = \$ 60\,192.$$

The difference is $60\,192 - 54\,340 = \$ 5852$.

$\therefore$ the casual basis pays \$ 5852 more over the year, but Sam would give up paid leave, paid sick days and job security.

Example 4 — unscaffolded

A part-time worker works 22 hours a week. Annual leave accrues at $1/13$ ($= 4/52$) of the ordinary hours worked. Find the annual leave accrued over a 26-week period, and express it as a number of the worker's normal weeks.

The ordinary hours worked are $22 \times 26 = 572$ hours. The annual leave accrued is

$$572 \times \frac{4}{52} = \frac{572}{13} = 44 \text{ hours.}$$

At 22 hours per normal week, this is $44 \div 22 = 2$ weeks.

$\therefore$ the worker accrues 44 hours of annual leave, which is 2 of their normal working weeks (half of a full year's 4-week entitlement, as expected for half a year).

Practice questions

Scaffolded

- Q1.** A supermarket pays a base rate of \$ 23.20 per hour, and casuals receive a 25 % loading. (a) Find the casual hourly rate. (b) Find the pay for an 8-hour casual shift. (c) Find how much of that shift pay is the loading.
- Q2.** A full-time worker works 40 hours a week with 4 weeks of paid annual leave a year (one day = 8 hours). (a) How many hours of annual leave is this? (b) How many working days is that? (c) How many leave hours are used by a 5-day break?
- Q3.** Two supermarket jobs offer the same 20-hour week: a casual role at \$ 30.00 per hour and a part-time permanent role at \$ 25.00 per hour. (a) Find the casual weekly pay. (b) Find the permanent weekly pay. (c) Find the weekly difference in pay.
- Q4.** A casual worker is paid \$ 28.75 per hour, which already includes a 25 % loading. (a) Find the base rate (before the loading). (b) Find the loading amount per hour. (c) Find the pay for a 5-hour shift.
- Q5.** Full-time is 38 hours a week with 152 hours of annual leave a year. A part-timer works 19 hours a week. (a) What fraction of full-time hours does the part-timer work? (b) Find their pro-rata annual leave in hours. (c) How many of their 19-hour weeks off is that?
- Q6.** Annual leave accrues at $\frac{1}{13}$ of the ordinary hours worked. (a) Find the leave accrued after working 260 hours. (b) Find the leave accrued after a 39-hour week. (c) Explain why a casual paid a 25 % loading does not also accrue this paid leave.

Unscaffolded

- Q7.** A warehouse pays a base rate of \$ 26.40 per hour with a 25 % casual loading. Find the casual hourly rate and the pay for a 10-hour casual shift.
- Q8.** A casual hospitality worker is paid \$ 31.25 per hour, including a 25 % loading. Find the base rate and the loading amount per hour.
- Q9.** A full-time worker (38 hours a week) is entitled to 4 weeks of annual leave and 10 days of personal/sick leave a year (one day = 7.6 hours). Find (a) the annual leave in hours, (b) the personal leave in hours, and (c) the total paid leave in hours.
- Q10.** The same 30-hour week is offered as a casual role at \$ 34.00 per hour (no paid leave) or a permanent role at \$ 28.00 per hour (with paid leave). (a) Find the casual weekly pay. (b) Find the permanent weekly pay. (c) State the extra weekly cash the casual earns, and one thing the casual gives up.
- Q11.** A part-time worker on 24 hours a week accrues annual leave at $\frac{1}{13}$ of the ordinary hours worked. Over a 39-week school year, how many hours of annual leave do they accrue, and how many of their 24-hour weeks does that represent?
- Q12.** A casual is paid \$ 29.00 per hour. A permanent role pays \$ 24.50 per hour for 38 hours a week over 52 paid weeks (48 weeks worked plus 4 weeks paid leave). If the casual also works 48 weeks (taking 4 unpaid weeks off), whose annual pay is higher, and by how much?
- Q13.** Priya is offered a 6-month fixed-term contract and an ongoing (permanent) role at the same pay rate. State two differences between fixed-term and ongoing employment, and say which gives more job security.
- Q14.** A casual worker's rate is \$ 30.00 per hour (which includes a 25 % loading). Over a fortnight they work 52 hours. (a) Find their pay for the fortnight. (b) Find how much of that pay is the loading.
- Q15.** A full-time worker earning \$ 30.00 per hour (38 hours a week) takes their 4 weeks (152 hours) of paid annual leave. Find the dollar value of the annual leave, and the total pay for a 52-week year (48 weeks worked plus 4 weeks of paid leave).

Q16. A part-time employee works 15 hours a week. Full-time is 38 hours a week with 152 hours of annual leave a year. Find the part-timer's pro-rata annual leave in hours.

Q17. A casual is paid \$ 28.00 per hour, including a 25 % loading. (a) Find the base rate. (b) If the loading were 15 % instead (on the same base), find the new casual rate. (c) Find the difference per hour between the 25 % and 15 % casual rates.

Q18. A worker who wants 4 weeks off a year compares two 38-hour-a-week jobs: Job A is casual at \$ 32.00 per hour, working 48 weeks (with 4 unpaid weeks off); Job B is permanent at \$ 29.00 per hour, paid for all 52 weeks (48 worked plus 4 weeks paid leave). Find each job's annual pay, and state one advantage of Job B beyond the pay.

Answers

Q1. (a) \$ 29.00. (b) \$ 232.00. (c) \$ 46.40. **Q2.** (a) 160 hours. (b) 20 days. (c) 40 hours. **Q3.** (a) \$ 600. (b) \$ 500. (c) \$ 100. **Q4.** (a) \$ 23.00. (b) \$ 5.75. (c) \$ 143.75. **Q5.** (a) $\frac{1}{2}$. (b) 76 hours. (c) 4 weeks. **Q6.** (a) 20 hours. (b) 3 hours. (c) The 25 % loading is paid **instead of** leave entitlements, so the casual has already been compensated for having no paid leave. **Q7.** casual rate \$ 33.00; shift pay \$ 330.00. **Q8.** base \$ 25.00; loading \$ 6.25 per hour. **Q9.** (a) 152 hours. (b) 76 hours. (c) 228 hours. **Q10.** (a) \$ 1020. (b) \$ 840. (c) \$ 180 extra; gives up paid leave / paid sick days / security. **Q11.** 72 hours, which is 3 of their 24-hour weeks. **Q12.** The casual, by \$ 4484 (casual \$ 52 896 vs permanent \$ 48 412). **Q13.** e.g. a fixed-term job ends automatically on an agreed date while an ongoing job continues until the worker resigns or is dismissed; an ongoing full-time worker receives the full annual and sick leave entitlement, while a fixed-term worker usually accrues leave pro-rata over the contract term. The ongoing (permanent) role gives more job security. **Q14.** (a) \$ 1560. (b) \$ 312. **Q15.** leave value \$ 4560; total pay \$ 59 280. **Q16.** 60 hours. **Q17.** (a) \$ 22.40. (b) \$ 25.76. (c) \$ 2.24. **Q18.** Job A \$ 58 368; Job B \$ 57 304; Job B adds paid annual and sick leave and job security.

Fully-worked solutions

Q1. (a) Casual rate = $23.20 \times 1.25 = \$ 29.00$ per hour. (b) Shift pay = $29.00 \times 8 = \$ 232.00$. (c) The base pay is $23.20 \times 8 = \$ 185.60$, so the loading is $232.00 - 185.60 = \$ 46.40$ (equivalently $23.20 \times 0.25 \times 8$).

Q2. (a) Annual leave = $4 \times 40 = 160$ hours. (b) In days, $160 \div 8 = 20$ days. (c) A 5-day break uses $5 \times 8 = 40$ hours.

Q3. (a) Casual pay = $30.00 \times 20 = \$ 600$. (b) Permanent pay = $25.00 \times 20 = \$ 500$. (c) Difference = $600 - 500 = \$ 100$ per week.

Q4. (a) Base rate = $28.75 \div 1.25 = \$ 23.00$. (b) Loading per hour = $28.75 - 23.00 = \$ 5.75$. (c) Shift pay = $28.75 \times 5 = \$ 143.75$.

Q5. (a) $\frac{19}{38} = \frac{1}{2}$. (b) Pro-rata leave = $152 \times \frac{1}{2} = 76$ hours. (c) $76 \div 19 = 4$ weeks off.

Q6. (a) $260 \times \frac{1}{13} = 20$ hours. (b) $39 \times \frac{1}{13} = 3$ hours. (c) The 25 % casual loading is paid **in place of** paid leave — the casual is given extra money each hour instead of building up annual and sick leave, so they do not accrue it as well.

Q7. Casual rate = $26.40 \times 1.25 = \$ 33.00$ per hour, so the shift pay is $33.00 \times 10 = \$ 330.00$.

Q8. Base rate = $31.25 \div 1.25 = \$ 25.00$; loading per hour = $31.25 - 25.00 = \$ 6.25$.

Q9. (a) Annual leave = $4 \times 38 = 152$ hours. (b) Personal leave = $10 \times 7.6 = 76$ hours. (c) Total paid leave = $152 + 76 = 228$ hours.

Q10. (a) Casual pay = $34.00 \times 30 = \$ 1020$. (b) Permanent pay = $28.00 \times 30 = \$ 840$. (c) The casual earns $1020 - 840 = \$ 180$ more each week, but gives up paid annual leave, paid sick days and job security.

Q11. Ordinary hours worked = $24 \times 39 = 936$. Annual leave = $936 \times \frac{1}{13} = 72$ hours. At 24 hours per week, that is $72 \div 24 = 3$ weeks.

Q12. Casual pay = $48 \times 38 \times 29.00 = \$ 52 896$. Permanent pay = $52 \times 38 \times 24.50 = \$ 48 412$. The casual earns more, by $52 896 - 48 412 = \$ 4484$.

Q13. A fixed-term contract ends automatically on an agreed date, whereas an ongoing job continues until the worker resigns or is dismissed, so a fixed-term worker may find it harder to plan or renew work beyond the end date. An ongoing full-time worker also receives the full annual and sick leave entitlement, whereas a fixed-term worker usually accrues leave pro-rata over the contract term. The ongoing (permanent) role gives more job security.

Q14. (a) Fortnight pay = $30.00 \times 52 = \$1560$. (b) The base rate is $30.00 \div 1.25 = \$24.00$, so the loading is $30.00 - 24.00 = \$6.00$ per hour; over 52 hours the loading is $6.00 \times 52 = \$312$.

Q15. The annual leave is worth $152 \times 30.00 = \$4560$. Total pay for the 52 paid weeks = $52 \times 38 \times 30.00 = \59280 (the \$4560 of leave is part of this total).

Q16. Pro-rata leave = $152 \times \frac{15}{38} = 4 \times 15 = 60$ hours.

Q17. (a) Base rate = $28.00 \div 1.25 = \$22.40$. (b) With a 15 % loading, casual rate = $22.40 \times 1.15 = \$25.76$. (c) Difference = $28.00 - 25.76 = \$2.24$ per hour.

Q18. Job A: $48 \times 38 \times 32.00 = \58368 . Job B: $52 \times 38 \times 29.00 = \57304 . Job A pays \$1064 more in cash, but Job B adds paid annual leave, paid sick leave and greater job security.

Chapter 7 Income and banking — 7G Bank accounts and statements

Theory

Once you earn an income you need somewhere to keep it, spend it from and save it in. This section is about the everyday banking most people use: the **accounts** you hold, the **statements** the bank sends you, the **fees** it charges, and the **interest** it pays on savings.

Accounts you use.

Two common kinds of account are:

- a **transaction account** (also called an everyday or cheque account) — used for day-to-day spending with a card, direct debits and online transfers. It usually pays little or no interest and may charge a small monthly fee.
- a **savings account** — used to hold money you are not spending yet. It pays **interest** on the balance, but may limit how often you can withdraw.

Reading a bank statement.

A **bank statement** is a list of every transaction over a period, shown with a running balance. Its columns are usually:

- **Date** — when the transaction happened.
- **Description** — what it was (wages, groceries, ATM, a transfer).
- **Debit** — money **out** of the account (a withdrawal, payment or fee): this **decreases** the balance.
- **Credit** — money **in** to the account (a deposit, wage or interest): this **increases** the balance.
- **Balance** — the amount in the account **after** that transaction.

Keeping a running balance.

Each new balance is found from the one above it:

$$\text{new balance} = \text{previous balance} + \text{credit} - \text{debit}.$$

If more goes out than the account holds, the balance becomes **negative** — the account is **overdrawn**.

Fees.

Banks may charge an **account-keeping fee** (a fixed amount each month), **transaction fees** (for example an ATM fee, or a fee for overseas purchases), and penalty fees if an account is overdrawn or a payment is dishonoured. Every fee is a **debit**.

Interest on savings.

At this level, interest on a savings balance is worked out as **simple interest**:

$$I = \frac{Prt}{100},$$

where P is the balance (principal), r is the interest rate percent per period, and t is the number of periods. For a rate “per annum” (p.a.), t is measured in years; for a monthly rate, t is a number of months. Interest paid in is a **credit**.

Worked examples

Example 1 — scaffolded

Priya’s transaction account starts the week with a balance of \$420.00. During the week her wages of \$650.00 are paid in, she spends \$84.50 on groceries, withdraws \$120.00 from an ATM, and a \$45.00 phone bill is paid by direct debit. Find the balance after each transaction.

Working	Comment
Start \$420.00; wages are a credit: $420.00 + 650.00 = \$1070.00$.	A credit adds to the balance.
Groceries are a debit: $1070.00 - 84.50 = \$985.50$.	A debit subtracts .
ATM withdrawal (debit): $985.50 - 120.00 = \$865.50$.	Cash out is a debit.
Phone direct debit: $865.50 - 45.00 = \$820.50$.	The final balance.

Example 2 — scaffolded

Sam has \$2500 in a savings account paying **simple interest** at 3.6 % per annum. Find the interest earned in (a) one year and (b) six months.

Working	Comment
Use $I = \frac{Prt}{100}$ with $P = 2500$, $r = 3.6$.	Simple interest formula.
(a) One year, $t = 1$: $I = \frac{2500 \times 3.6 \times 1}{100} = \90.00 .	Interest for a full year.
(b) Six months is $t = 0.5$ years: $I = \frac{2500 \times 3.6 \times 0.5}{100} = \45.00 .	Half a year earns half the interest.

Example 3 — unscaffolded

Leah's everyday account has an opening balance of \$312.75. In one month these transactions occur: salary \$1840.00 paid in; rent \$520.00 and groceries \$236.40 paid out; a \$5.00 monthly account fee and a \$2.50 ATM fee charged; and a \$150.00 cash withdrawal. Find the closing balance.

Add the single credit and subtract every debit from the opening balance:

$$312.75 + 1840.00 - 520.00 - 236.40 - 5.00 - 2.50 - 150.00 = 1238.85.$$

$\therefore$ the closing balance is \$1238.85.

Example 4 — unscaffolded

Dan wants to save \$4000 for one year and is choosing between two accounts. Account A charges no fee and pays simple interest at 2.5 % p.a. Account B pays simple interest at 4.0 % p.a. but charges a \$4 monthly account fee. Which account leaves him better off after one year, and by how much?

Account A interest: $\frac{4000 \times 2.5 \times 1}{100} = \100.00 ; no fee, so the net gain is \$100.00.

Account B interest: $\frac{4000 \times 4.0 \times 1}{100} = \160.00 ; fees = $12 \times \$4 = \48.00 ; net gain = $160.00 - 48.00 = \$112.00$.

$\therefore$ Account B is better by $112.00 - 100.00 = \$12.00$ over the year, because its higher interest more than covers the fees.

Practice questions

Scaffolded

Q1. A savings account starts with a balance of \$180. (a) Find the balance after a deposit of \$240. (b) Then find the balance after a withdrawal of \$95. (c) Then find the balance after a further withdrawal of \$60.

Q2. Over a fortnight an account records: wages \$ 720 in, groceries \$ 132.80 out, an ATM withdrawal of \$ 80, and interest of \$ 1.50 paid in. The opening balance is \$ 500. (a) Which of the four transactions are credits? (b) Which are debits? (c) Find the closing balance.

Q3. Maria puts \$ 1500 in a savings account paying **simple interest** at 3 % per annum. (a) Find the interest earned in one year. (b) Find the interest earned in two years. (c) Find the account balance after two years.

Q4. An account charges a \$ 6 monthly account-keeping fee plus \$ 0.50 for each ATM withdrawal. In one month there are 9 ATM withdrawals. (a) Find the total withdrawal fees for the month. (b) Find the total of all fees for the month. (c) If the account began the month at \$ 340 and only these fees were charged, find the closing balance.

Q5. Part of a statement is shown, with two entries missing.

Date	Description	Debit (\$)	Credit (\$)	Balance (\$)
3 May	Opening balance			600
5 May	Transfer in		150	?
9 May	EFTPOS	?		690

(a) Find the balance after the transfer in on 5 May.

(b) Find the size of the EFTPOS debit on 9 May.

Q6. A savings account holds \$ 2000 and pays **simple interest** at 0.3 % per month on that balance. (a) Find one month's interest. (b) Find the balance after that interest is added. (c) Find the total interest earned over 6 months (calculated as simple interest on the original \$ 2000), and the balance then.

Unscaffolded

Q7. An everyday account opens the month at \$ 255.60. During the month: salary \$ 1620 is paid in; rent \$ 480 and groceries \$ 198.30 are paid out; a \$ 5 account fee is charged; and \$ 200 cash is withdrawn. Find the closing balance.

Q8. A savings account holds \$ 3600 at a simple interest rate of 4.2 % per annum. Find the interest earned in (a) one year and (b) three years.

Q9. Tom's account has \$ 85 in it. He withdraws \$ 60 at an ATM, then a \$ 50 direct debit is taken out, which overdraws the account and triggers a \$ 15 overdrawn fee. Find the balance after each of the three events, and state the final (overdrawn) balance.

Q10. Nia will keep \$ 5000 for one year. Account A pays simple interest at 3 % p.a. with no fee; Account B pays 3.8 % p.a. but charges a \$ 5 monthly fee. Find the net gain from each account and state which is better, and by how much.

Q11. On an overseas trip a traveller makes 5 card purchases, each charged a \$ 3.50 overseas transaction fee, plus a currency conversion fee of 2 % on the \$ 400 total spent. Find the total of all these fees.

Q12. Sofia's account holds \$ 312. She must pay a \$ 185 bill (a debit) and wants the balance to be \$ 1000 afterwards. Find the size of the deposit she must make.

Q13. A savings account holds \$ 2000 at 5 % per annum **simple interest**. For how many whole years must it be left to earn \$ 300 in interest?

Q14. An account is charged a \$ 9 account-keeping fee every month while holding a steady balance of \$ 2400. (a) Find the total of the fees over one year. (b) Express the yearly fees as a percentage of the \$ 2400 balance.

Q15. A statement should show: opening balance \$ 700; a \$ 250 deposit; a \$ 130 payment; and a \$ 75 payment. The printed final balance reads \$ 755. (a) Work out what the final balance should be. (b) State the size of the error in the printed balance.

Q16. Ben deposits \$ 200 at the start of each month into a savings account for 6 months. At the end the bank adds \$ 18 in interest. (a) Find the total amount deposited. (b) Find the final balance.

Q17. An account opens at \$ 1000. In month 1: a \$ 500 deposit, \$ 320 of spending, and a \$ 5 fee. In month 2: a \$ 500 deposit, \$ 410 of spending, a \$ 5 fee, and \$ 3 interest paid in. Find the balance at the end of each month.

Q18. A worker makes 12 ATM withdrawals each month. Account A costs \$ 4 per month with free ATM use; Account B has no monthly fee but charges \$ 0.60 per ATM withdrawal. (a) Find the monthly cost of each account, and state which is cheaper and by how much. (b) Find the yearly cost of each account.

Answers

Q1. (a) \$ 420. (b) \$ 325. (c) \$ 265. **Q2.** (a) wages and interest. (b) groceries and the ATM withdrawal. (c) \$ 1008.70. **Q3.** (a) \$ 45. (b) \$ 90. (c) \$ 1590. **Q4.** (a) \$ 4.50. (b) \$ 10.50. (c) \$ 329.50. **Q5.** (a) \$ 750. (b) \$ 60. **Q6.** (a) \$ 6.00. (b) \$ 2006.00. (c) interest \$ 36.00, balance \$ 2036.00. **Q7.** \$ 992.30. **Q8.** (a) \$ 151.20. (b) \$ 453.60. **Q9.** after ATM \$ 25; after direct debit – \$ 25 (overdrawn); after fee – \$ 40; final balance – \$ 40. **Q10.** Account A net \$ 150; Account B net \$ 130; Account A is better by \$ 20. **Q11.** \$ 25.50. **Q12.** \$ 873. **Q13.** 3 years. **Q14.** (a) \$ 108. (b) 4.5 %. **Q15.** (a) \$ 745. (b) the printed balance is \$ 10 too high. **Q16.** (a) \$ 1200. (b) \$ 1218. **Q17.** end of month 1 \$ 1175; end of month 2 \$ 1263. **Q18.** (a) A \$ 4, B \$ 7.20; Account A is cheaper by \$ 3.20. (b) A \$ 48, B \$ 86.40.

Fully-worked solutions

Q1. Start at \$ 180. (a) Deposit: $180 + 240 = \$ 420$. (b) Withdraw \$ 95: $420 - 95 = \$ 325$. (c) Withdraw \$ 60: $325 - 60 = \$ 265$.

Q2. (a) Credits are money **in**: the wages \$ 720 and the interest \$ 1.50. (b) Debits are money **out**: the groceries \$ 132.80 and the ATM withdrawal \$ 80. (c) Closing balance = $500 + 720 - 132.80 - 80 + 1.50 = \$ 1008.70$.

Q3. Simple interest $I = \frac{Prt}{100}$ with $P = 1500$, $r = 3$. (a) $t = 1$: $I = \frac{1500 \times 3 \times 1}{100} = \$ 45$. (b) $t = 2$: $I = \frac{1500 \times 3 \times 2}{100} = \$ 90$. (c) Balance = $1500 + 90 = \$ 1590$.

Q4. (a) Withdrawal fees = $9 \times \$ 0.50 = \$ 4.50$. (b) Total fees = $\$ 6 + \$ 4.50 = \$ 10.50$. (c) Closing balance = $340 - 10.50 = \$ 329.50$.

Q5. (a) After the transfer in: $600 + 150 = \$ 750$. (b) The EFTPOS debit takes the balance from \$ 750 to \$ 690, so it is $750 - 690 = \$ 60$.

Q6. (a) One month's interest = $\frac{2000 \times 0.3 \times 1}{100} = \$ 6.00$. (b) Balance = $2000 + 6 = \$ 2006.00$. (c) As simple interest on the original \$ 2000, six months earn $6 \times \$ 6 = \$ 36.00$, giving a balance of $2000 + 36 = \$ 2036.00$.

Q7. Closing balance = $255.60 + 1620 - 480 - 198.30 - 5 - 200 = \$ 992.30$.

Q8. $P = 3600$, $r = 4.2$. (a) $t = 1$: $I = \frac{3600 \times 4.2 \times 1}{100} = \$ 151.20$. (b) $t = 3$: $I = \frac{3600 \times 4.2 \times 3}{100} = \$ 453.60$.

Q9. Start \$ 85. ATM withdrawal: $85 - 60 = \$ 25$. Direct debit: $25 - 50 = -\$ 25$, so the account is overdrawn by \$ 25. Overdrawn fee: $-25 - 15 = -\$ 40$. The final balance is $-\$ 40$ (overdrawn by \$ 40).

Q10. Account A: interest = $\frac{5000 \times 3 \times 1}{100} = \$ 150$; no fee, net \$ 150. Account B: interest = $\frac{5000 \times 3.8 \times 1}{100} = \$ 190$; fees = $12 \times \$ 5 = \$ 60$; net = $190 - 60 = \$ 130$. Account A is better by $150 - 130 = \$ 20$.

Q11. Transaction fees = $5 \times \$ 3.50 = \$ 17.50$. Currency fee = 2% of \$ 400 = $0.02 \times 400 = \$ 8.00$. Total = $17.50 + 8.00 = \$ 25.50$.

Q12. Let the deposit be D . Then $312 + D - 185 = 1000$, so $D = 1000 - 312 + 185 = \$ 873$.

Q13. Yearly interest = $\frac{2000 \times 5}{100} = \$ 100$ per year. To earn \$ 300 needs $t = \frac{300}{100} = 3$ years.

Q14. (a) Yearly fees = $12 \times \$ 9 = \$ 108$. (b) As a percentage of the balance: $\frac{108}{2400} \times 100\% = 4.5\%$.

Q15. (a) Correct final balance = $700 + 250 - 130 - 75 = \$ 745$. (b) The printed \$ 755 is $755 - 745 = \$ 10$ too high.

Q16. (a) Total deposited = $6 \times \$ 200 = \$ 1200$. (b) Final balance = $1200 + 18 = \$ 1218$.

Q17. End of month 1: $1000 + 500 - 320 - 5 = \$1175$. End of month 2: $1175 + 500 - 410 - 5 + 3 = \1263 .

Q18. (a) Account A costs \$4 per month. Account B costs $12 \times \$0.60 = \7.20 per month. Account A is cheaper by $7.20 - 4 = \$3.20$. (b) Yearly: Account A = $12 \times \$4 = \48 ; Account B = $12 \times \$7.20 = \86.40 .