Practice paper 1

Recommended time: One hour

Section 1
10 multiple-choice questions: 1 mark each
Select the correct answer, A, B, C or D.

Question 1

Exercise 2.01

Simplify $4ab + b^2 - 3ab - 4b^2$.

A $-2ab^3$ **B** $ab - 3b^2$
C $7ab - 3b^2$ **D** $ab - 5b^2$

Question 2

Exercise 1.03

Which one of these is an example of discrete data?

A the capacity of Warragamba Dam
B the number of tries scored by a football team over a season
C the height of a person in your class
D the time it took a triathlete to complete her race

Question 3

Exercise 2.01

Simplify $\frac{8t^6}{16t^2}$.

A $2t^4$ **B** $2t^3$ **C** $\frac{t^3}{2}$ **D** $\frac{t^4}{2}$

Question 4

Exercise 1.04

To decide upon the theme of the next school disco, Tasha surveyed a stratified sample of 50 students from the school, based on the following numbers of students in each Year group.

Year	7	8	9	10	11	12
Number of students	114	120	114	128	105	96

How many Year 12 students were in Tasha's sample?

A 4 **B** 7 **C** 8 **D** 14

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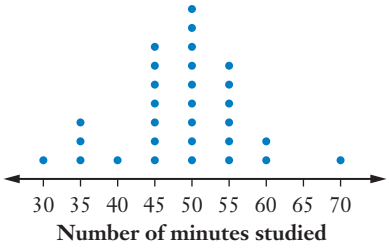
Question 5

Exercise 1.07

The dot plot shows the total number of minutes students studied to prepare for a mathematics assessment task.



Between which two values is the data clustered?

A 35 and 55 **B** 40 and 60 **C** 45 and 55 **D** 45 and 60

Question 6

Exercise 2.04

Solve $5 - 2x = -6$.

A $x = -5\frac{1}{2}$ **B** $x = 5\frac{1}{2}$ **C** $x = -\frac{1}{2}$ **D** $x = \frac{1}{2}$

Question 7

Exercise 2.02

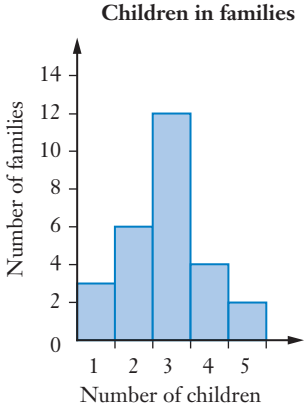
Use the formula $v = u + at$ to find the value of v if $u = 8$, $a = 10$ and $t = 5$.

A $v = 90$ **B** $v = 58$ **C** $v = 42$ **D** $v = 113$

Question 8

Exercise 1.06

This frequency histogram shows the results of a survey about the number of children in each family.



How many families were surveyed?

A 12 **B** 15 **C** 27 **D** 77

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Exercise 3.02

Question 9

Jamie's cookbook sells for $29.00 per copy. He earns a royalty of 12% of the selling price of the book. How much money will Jamie receive if 7200 books are sold in total?

A $25 056 **B** $11 232 **C** $13 824 **D** $38 880

Exercise 3.07

Question 10

A camera has a price of $137.50 after a GST of 10% is added. What was the camera's price before GST?

A $123.75 **B** $125.15 **C** $127.50 **D** $125

Section 2
3 questions: 10 marks each

Exercise 2.04

Question 11 (10 marks)

a Solve $9x - 11 = 4x + 7$. **2 marks**

Exercise 1.07

b The waiting times, in minutes, for patients at the Westvale Health Centre are shown in the stem-and-leaf plot.

Stem	Leaf
0	2 3 4 5
1	0 1 3 6 □ 8
2	1 1 3 4 4
3	1 2
4	1
5	1

i One entry is missing and is shown as □.
What *waiting time* could be represented by this entry? **1 mark**

ii How many patients were surveyed? **1 mark**

iii Calculate, correct to one decimal place, the percentage of patients who waited for longer than half an hour. **1 mark**

iv What was the shortest waiting time? **1 mark**

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c The table below shows the weekly pay of four employees at Wonka's chocolate factory. Overtime is paid at time-and-a-half. Complete the table by calculating the missing values at **i**, **ii**, **iii** and **iv**. **4 marks**

Exercise 3.01

Name	Pay rate (per hour)	Normal hours	Overtime hours	Weekly pay
Ilaria	$25.00	38	2	**i**
Kai	$33.50	12	**ii**	$452.25
Lauren	**iii**	38	4	$1204.72
Harry	$31.00	**iv**	3	$976.50

Question 12 (10 marks)

a Expand and simplify $3(2p + 5) - 4(p + 3)$. **1 mark**

Exercise 2.01

b Zayn needs to give his son some medicine. He uses Clark's rule: $D = \frac{kA}{70}$

where D is the child dosage, k is the mass of the child in kilograms and A is the adult dosage.

Zayn's son is 6 years old and weighs 22 kg. The adult dosage is 10 mL, taken every morning and every night. How many days will a 300 mL bottle of medicine last for Zayn's child? **2 marks**

Exercise 2.03

c Bree earns $925 per week. Calculate her holiday loading if it is 17.5% of 4 weeks pay. **2 marks**

Exercise 3.03

d Jarryd earns 2% commission from each house he sells. How much would he earn in a month in which he sells three houses for $810 000, $675 000 and $408 600? **2 marks**

Exercise 3.02

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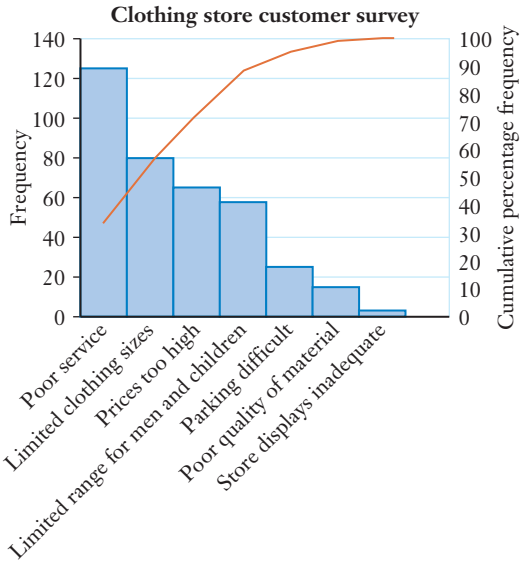
Exercise 1.05

e This Pareto chart shows the result of a customer survey for a clothing store.



i What are the two most common complaints? **1 mark**

ii Is the following statement true or false?

'More customers complained about the limited range of clothing than the poor quality of the material.' **1 mark**

iii What two things could the manager do to improve the store? **1 mark**

Question 13 (10 marks)

Exercise 2.05

a The following formula gives the number of hours it takes for a man's blood alcohol content (BAC) to return to zero after he has been consuming alcohol:

$$\text{Number of hours} = \frac{\text{BAC}}{0.015}$$

If Ben has a BAC of 0.026, how many hours and minutes will it take for his BAC to return to zero? **2 marks**

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b The masses, in kilograms, of 20 Year 11 students were recorded:

58	43	62	52	49	48	52	45	68	72
54	41	65	41	48	51	60	66	57	69

i Are people's masses discrete data or continuous data? **1 mark**

ii Organise the data into a frequency table with classes $40–< 45$, $45–< 50$, and so on. **1 mark**

iii Draw a frequency histogram to represent the data. **2 marks**

iv What percentage of students were 60 kg or more? **1 mark**

c Phoebe has a gross weekly income of $1874.60. Last financial year, she had allowable tax deductions totalling $2415.00. Calculate Phoebe's taxable income for that year, then use the table below to calculate her income tax. **3 marks**

Income tax rates for Australian residents	
Taxable income	**Tax on this income**
$0–$18 200	Nil
$18 201–$37 000	19c for each $1 over $18 200
$37 001–$87 000	$3572 plus 32.5c for each $1 over $37 000
$87 001–$180 000	$19 822 plus 37c for each $1 over $87 000
$180 001 and over	$54 232 plus 45c for each $1 over $180 000

END OF EXAMINATION

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