



Topic: Budget, Spreadsheet, Unit Pricing

Time: 45 mins

Marks: /45 marks

Calculator Assumed

Question One: [1, 1, 2, 2: 6 marks]

Calculate the unit price of the following. Choose the most appropriate units for your answers.

a) 5 kg bag of dog food which costs \$29.90.

b) 1.5 L orange juice which costs \$5.78.

c) 375 g butter which costs \$6.60.

d) 300 mL chocolate milk which costs \$1.65.

Mathematics General Unit 1
(Applications Course in WA)

Question Two: [2, 5: 7 marks]

Shane uses a spreadsheet to create his weekly budget.

	A	B	C	D	E	F	G	H	I	J	K
1	Hours worked			Income	Government assistance	rent	bills	food	transport	entertainment	surplus
2	21			462	75	200	50	80	20	46.2	140.8
3											
4											
5											
6											
7											
8											

- a) Shane earns \$22 per hour. If he types the number of hours he works into cell A2, what formula is required in cell D2 so that it calculates his income based on the number of hours he has worked.
- b) Shane earns his weekly income and receives \$75 per week in Government Rent Assistance. Each week he pays \$200 in rent and he always sets aside 10% of his pay to spend on entertainment. What formulas are needed to calculate:
- the amount he sets aside to spend on entertainment.
 - the amount of surplus he has left at the end of the week.

Question Three: [2, 2, 2: 6 marks]

Valentina and her mother are making a traditional Italian tomato sauce and they want to bottle it up and sell it. They buy 20kg of tomatoes at 4.25/kg and some other ingredients like salt, herbs and spices, which comes to \$33.15. They buy 80 1L glass bottles to fill and sell which cost \$1.00 each.

- Calculate their total costs involved in making the tomato sauce.
- If they want to make a 35% profit how much money will they make after they have sold all of the bottles of tomato sauce?
- What is the unit pricing of their tomatoe sauce in dollars per litre?

Question Four: [4 marks]

Consider the following table outlining the family tax benefit payable to families with 1 child, based on their level of income.

Families with 1 child meeting the criteria	
Combined annual income	Family Tax Benefit for the year
Up to \$48000	\$5100
\$48001 to \$63000	\$5100 less 20 cents for each \$1 annual income exceeds \$48000
\$63001 to \$95000	\$2100
\$95001 to \$102000	\$2100 less 30 cents for each \$1 that annual income exceeds \$95000
Over \$102000	Nil

Determine the annual Family Tax Benefit (FTB) paid to a family with one child meeting the FTB requirements and with a combined annual income of \$96,000.

Question Five: [4, 4: 8 marks]

Sam works at JB HiFi. The pay structure works as follows.

Category of work	Rate of Pay
Monday-Friday	\$18/hour
Saturday	Regular hourly rate + 16% overtime loading
Sunday	Double time
Commission Rate	9% of profit from sales
Additional incentive	An extra 3% commission on the entire sale price when the customer opts for finance.

- a) If the following table represents Sam's hours and sales for an average month, calculate his average monthly salary.

Category of work	Sam's hours and sales
Monday-Friday	600
Saturday	64
Sunday	64
Commissions	Total profit on sales=\$5000
Additional incentives	Total value of finance deals=\$2800

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- b) Calculate the amount of income tax Sam will pay based on his annual salary and the tax rates shown in the table below.

Taxable Income	Income tax to pay
\$0 to \$19 400	Nil
\$19 4001 to \$37 000	19% of the taxable income over \$19 400
\$37 001 to \$80 000	\$3 344 + 33% of the taxable income over \$37 000
\$80 001 to \$180 000	\$17 534 + 37% of the taxable income over \$80 000
\$180 001 and above	\$54 534 + 45% of the taxable income over \$180 000

Question Six: [5, 2, 3, 4: 14 marks]

Amanda is a student studying to be a Vet.

She works part time as a waitress for 18 hours a week plus 4 hours of overtime where she gets paid time and a half. Her rate of pay is \$20/hr.

Amanda works 40 weeks of the year.

She lives with a friend and pays \$150 per week in rent and this covers her utility bills.

She has a car and it costs \$80 to fill up with petrol once a month. She puts \$200 aside each year to cover the maintenance of her car for that year.

Her other fixed expenses are her mobile phone which costs \$50/month.

Amanda is creating a budget. Working on the approximation of 4 weeks in a month and 52 weeks in a year;

- What percentage of her weekly budget goes to her rent?
- What is the total of her annual fixed expenses?
- How much money does she have left annually after all her fixed expenses?

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- d) With the remaining money she still needs to budget for food, entertainment and savings. If she decides to do this in the ratio of 4 : 2 : 1 respectively, how much money is set aside each week for each.



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Calculator Assumed

Question One: [1, 1, 2, 2: 6 marks]

Calculate the unit price of the following. Choose the most appropriate units for your answers.

- a) 5 kg bag of dog food which costs \$29.90.

$$29.90 \div 5 = \$5.98/\text{kg} \quad \checkmark$$

- b) 1.5 L orange Juice which costs \$5.78.

$$5.78 \div 1.5 = \$3.85/\text{L} \quad \checkmark$$

- c) 375 g butter which costs \$6.60.

$$6.6 \div 0.375 = \$17.60/\text{kg} \quad \checkmark \quad \checkmark$$

- d) 300 mL chocolate milk which costs \$1.65.

$$1.65 \div 0.3 = \$5.50/\text{L} \quad \checkmark \quad \checkmark$$

Question Two: [2, 5: 7 marks]

Shane uses a spreadsheet to create his weekly budget.

	A	B	C	D	E	F	G	H	I	J	K
1	Hours worked			Income	Government assistance	rent	bills	food	transport	entertainment	surplus
2	21			462	75	200	50	80	20	46.2	140.8
3											
4											
5											
6											
7											
8											

- a) Shane earns \$22 per hour. If he types the number of hours he works into cell A2, what formula is required in cell D2 so that it calculates his income based on the number of hours he has worked.

$$D2 = 22 \times A2$$

- b) Shane earns his weekly income and receives \$75 per week in Government Rent Assistance. Each week he pays \$200 in rent and he always sets aside 10% of his pay to spend on entertainment. What formulas are needed to calculate:

- i) the amount he sets aside to spend on entertainment.

$$J2 = 0.1 \times D2$$

- ii) the amount of surplus he has left at the end of the week.

$$K2 = D2 + E2 - (F2 + G2 + H2 + I2 + J2)$$

Question Three: [2, 2, 2: 6 marks]

Valentina and her mother are making a traditional Italian tomato sauce and they want to bottle it up and sell it. They buy 20kg of tomatoes at 4.25/kg and some other ingredients like salt, herbs and spices, which comes to \$33.15. They buy 80 1L glass bottles to fill and sell which cost \$1.00 each.

- a) Calculate their total costs involved in making the tomato sauce.

$$20 \times 4.25 + 33.15 + 80 = \$198.15$$



- b) If they want to make a 35% profit how much money will they make after they have sold all of the bottles of tomato sauce?

$$0.35 \times 198.15 = \$69.35$$



- c) What is the unit pricing of their tomato sauce in dollars per litre?

$$(198.15 + 69.35) \div 80 = \$3.34/\text{L}$$



Question Four: [4 marks]

Consider the following table outlining the family tax benefit payable to families with 1 child, based on their level of income.

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\$95001 to \$102000	\$2100 less 30 cents for each \$1 that annual income exceeds \$95000
Over \$102000	Nil

Determine the annual Family Tax Benefit (FTB) paid to a family with one child meeting the FTB requirements and with a combined annual income of \$96,000.

$$\begin{aligned}
 & \checkmark \quad \checkmark \quad \checkmark \\
 & 2100 - 0.3 (96000 - 95000) \\
 & = \$1800 \quad \checkmark
 \end{aligned}$$

Question Five: [4, 4: 8 marks]

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Commission Rate	9% of profit from sales
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- a) If the following table represents Sam's hours and sales for an average month, calculate his average monthly salary.

Category of work	Sam's hours and sales
Monday-Friday	600
Saturday	64
Sunday	64
Commissions	Total profit on sales=\$5000
Additional incentives	Total value of finance deals=\$2800

$$600 \times 18 + 64 \times 20.88 + 64 \times 36 + 5000 \times 0.09 + 2800 \times 0.03 = \$14\,974.32$$

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- b) Calculate the amount of income tax Sam will pay based on his annual salary and the tax rates shown in the table below.

Taxable Income	Income tax to pay
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\$19 4001 to \$37 000	19% of the taxable income over \$19 400
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\$180 001 and above	\$54 534 + 45% of the taxable income over \$180 000

Annual salary = \$179 691.84 ✓

$$17\,534 + 0.37 (179\,691.84 - 80\,000) = 54\,419.98$$

✓ ✓ ✓

Question Six: [5, 2, 3, 4: 14 marks]

Amanda is a student studying to be a Vet.

She works part time as a waitress for 18 hours a week plus 4 hours of overtime where she gets paid time and a half. Her rate of pay is \$20/hr.

Amanda works 40 weeks of the year.

She lives with a friend and pays \$150 per week in rent and this covers her utility bills.

She has a car and it costs \$80 to fill up with petrol once a month. She puts \$200 aside each year to cover the maintenance of her car for that year.

Her other fixed expenses are her mobile phone which costs \$50/month.

Amanda is creating a budget. Working on the approximation of 4 weeks in a month and 52 weeks in a year;

- a) What percentage of her weekly budget goes to her rent?

$$\checkmark \frac{150}{150 + 20 + 3.85 + 12.5} \times 100 = 80.5\% \checkmark$$

\checkmark
 \checkmark

- b) What is the total of her annual fixed expenses?

$$150 \times 52 + 80 \times 12 + 200 + 50 \times 12 = \$9\,560$$

\checkmark \checkmark

- c) How much money does she have left annually after all her fixed expenses?

$$\checkmark 40 (18 \times 20 + 4 \times 30) = 19200 \checkmark$$

$$19200 - 9560 = \$9640 \checkmark$$

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- d) With the remaining money she still needs to budget for food, entertainment and savings. If she decides to do this in the ratio of 4 : 2 : 1 respectively, how much money is set aside each week for each.

$$\text{Food} = \frac{4}{7} \times 9640 = 5\,508.57 \quad \checkmark$$

$$5\,508.57 \div 52 = \$105.93$$

$$\text{Entertainment} = \frac{2}{7} \times 9640 = 2\,754.29 \quad \checkmark$$



$$2\,754.29 \div 52 = \$52.97$$

$$\text{Savings} = \frac{1}{7} \times 9640 = 1\,377.14 \quad \checkmark$$

$$1\,377.14 \div 52 = \$26.48$$