Student Name SOLUTIONS

Eastern Goldfields College

Essential Mathematics Unit 1 2017

Application 1 **Total Marks: 56 marks (10%)**

Calculators, A4 PAGE OF NOTES

PETER'S PLACE

Part A 40 marks

Peter has just moved in to a rental property. He shares his house with one other person and has listed the following **expenses**:

Rent is $400 per **week**, Food is $150 per **week**, Moped fuel is $10 per **week**, Electricity and gas is $2160 **annually** and his phone plan is $49 per **month**.

He has decided to allocate $60 per **month** to clothing, $200 per **fortnight** to entertainment, $15 per **week** for medical care and $20 per **week** for gym membership.

Peter has an apprenticeship and a copy of his time sheet is attached which shows his weekly **income**. His pay rate is **normal** for the **first 8** hours on a week day. Any **extra** hours on a week day are paid at **time and a half** and any hours worked on a **weekend** are paid at **double** time.

NB: If Peter shares his accommodation he will only pay **$200 per week** for rent and **$90 per month** for electricity and gas.

1. Complete Peter's timesheet. (9 marks)

2. Display Peter's income on the **Budget Table** as weekly, fortnightly, monthly and annual amounts and complete **ALL** entries. (12 marks)

3. Superannuation is a form of saving to provide you with an income after you retire from the workforce. Australian employers must contribute a percentage of the employee's salary. Calculate Peter's **annual** superannuation if his rate is 9.5% p.a. (2 marks)

   $0.095 \times 53040 = \$5038.80$ ✓ ✓

4. State Peter's total expenses per fortnight. (1 mark)

   $1081.85 ✓

5. What fraction of Peter's fortnightly income is spent on food? Simplify (2 marks)

$\frac{300}{2040} = \frac{5}{34}$ ✓ ✓

6. Based on this budget how much does Peter save per month? Is it possible for Peter to save 10% of his monthly income? Justify your answer with calculations. (3 marks)

$2076 ✓ $\frac{2076}{4420} \times 100 = 47\%$ ✓ Yes. ✓

7. What % of his income goes towards rent? (2 marks)

$\frac{200}{1020} \times 100 = 19.6\% \sim 20\%$. ✓ ✓

8. Would Peter be able to afford to live in the house on his own? (i.e. could he pay all the rent, gas and electricity as well as his other expenses) Justify your answer with calculations. (3 marks)

Extra $200/wk rent
Extra $20.77/wk
} $220.77 extra/wk ✓✓ working

Yes, he could because he saves $479.07/wk.
OR SIMILAR JUSTIFICATION

9. Peter believes he spends less than 5% of his income on clothes. Is this correct? Justify your answer with calculations. (2 marks)

$\frac{60}{4420} \times 100 = 1.4\%$ ✓ Yes ✓

10. Peter wants to budget for a trip to Bali on December 1st. His ticket cost $362 return. If Peter puts $25 per week towards the cost of his ticket, how long will it take to save the money? (2 marks)

$362 \div 25 = 14.48$ ✓ ∴ 15 weeks ✓

11. If Peter did end up living on his own suggest two ways he could reduce his expenses. (2 marks)

- Spend less on entertainment ✓
- prepaid phone ✓ (any sensible answer).

Part B

16 marks

Use the shopping dockets provided to complete each task below.

1. Look at the **'Woolworths'** shopping docket.

   Use rounding to estimate the total cost of the items on the docket to the nearest dollar. Round each item to the nearest dollar and add up the total. (Show working below). (2 marks)

   3 + 2 + 6 + 10 + 6 + 4 + 4 + 2 + 3 + 4 + 5 + 2 + 2 ✓
   + 2 + 3 + 4 + 3 + 4 + 3 + 3 + 3 + 4 + 2 + 2 + 2
   = $88 ✓

2. Compare your estimate with the actual cost on the docket.
   a) Was your estimate higher or lower than the actual cost? (1 mark)

   higher ✓

   b) By how much? (1 mark)

   $1.84 ✓

3. Calculate the percentage difference of your estimate to the actual cost. (Show all working). (2 marks)

   1.84 ÷ 86.16 × 100 = 2.1%.
   ✓ ✓

   cream

4. Compare the "dutch" potatoes to the "sweet gold" potatoes.

   a) What is the difference in price per kilogram? (1 mark)

   $3/kg ✓

   b) Which type could you buy more of with $10? (1 mark)

   Dutch cream potatoes. ✓

   c) If I had $10 I could buy approximately 1.8 kg of "sweet gold" potatoes. Explain, using mathematical working/reasoning, how this has been calculated. (2 marks)

   10 ÷ 5.5 = 1.$\overline{81}$ ~ 1.8 kg
   ✓ ✓

5. Look at the **"redkite"** receipt

a) Milk costs $2.80 for 2 Litres. What is the cost per 100 ml? (2 marks)

2.80 for 2000 ml ✓
2.8 ÷ 20 = $0.14/100 ml ✓ (14c/100 ml)

b) Is $8 enough to buy 300 g of lamb cutlets? Show working to justify your answer. (2 marks)

$26/1000g ∴ 2.6 x 3 = 7.8
$2.60/100g ✓ so $7.8/300g so yes it ✓
(working) is enough.

c) If navel oranges go on 'special' next week at 15% off the regular price, how much would the same amount of oranges cost next week? (2 marks)

9.33 x 0.85 = $7.93
✓ ✓
or 0.15 x 9.33 = 1.40.
9.33 − 1.40 = $7.93
or 0.15 x 7.90 = 1.19 off/kg.
so $6.72/kg 6.72 x 1.181 = $7.93

Any sound mathematical reasoning.

END OF APPLICATION