



SYDNEY BOYS HIGH SCHOOL
MOORE PARK, SURRY HILLS

2006

10MaB
Consumer Arithmetic

Mathematics

General Instructions

- Write using black or blue pen
- Calculators may be used.
- Answers with no working attract 1 mark only.
- All *necessary* working should be shown in every question if full marks are to be awarded.
- Marks may NOT be awarded for messy or badly arranged work.
- Attempt all questions.

NAME:

Examiner: *A.Ward*

<u>Questions</u>		Staff	Staff
– Write Answers In Writing Booklet – Do Not Write on Question Paper			
1.	Determine the best buy: (choose) A.) 170g of Spreadmite for \$1.45 B.) 235g of Spreadmite for \$1.90 C.) 340g of Spreadmite for \$2.65 D.) 500g of Spreadmite for \$3.95		
2.	Explain the difference between a <i>flat rate of interest</i> and <i>reducible interest</i> .		
3.	A photocopier purchased for \$1000 depreciates at a rate of 30% p.a. After how many full years will its value fall below \$450.(choose). A. 3 years B. 2 years C. 4 years D. 5 years E. 1 year		
4.	Victor receives a yearly gross salary of \$23,400. He pays 19.5% of his weekly gross salary in tax. He contributes 5% of his weekly gross salary to his superannuation fund. \$92 is also taken in miscellaneous deductions. a.) Find the amount of tax deducted from Victor's pay packet each week. b.) Find his weekly net pay after all deductions are made.		
5.	A motorbike costs \$3750. James has \$850 and is going to borrow the remainder. He is going to repay the loan in 24 monthly payments of \$155. a.) How much interest does James pay? b.) What is the annual rate of interest on his loan? (simple interest).		
6.	How much will an investment of \$30000 grow to if invested at 7.5%p.a. and the interest is compounded quarterly for 12 years.		
7.	If Kelvin invests \$2000 at 8% p.a., how long will he have to invest in order for the \$2000 to double at: a.) simple interest. b.) compound interest.		

8. Sam's credit union has an account which offers 5% p.a. interest compounded monthly. If he invests \$4000 in this account and withdraws the interest when it is paid twice yearly, at six and twelve months. Find his total interest earned in the year.

9. Mario obtains a loan of \$40000 from a bank. At the end of each month interest is calculated before the monthly repayment is made. The interest rate is 15% p.a. monthly reducible. Mario repays the loan at \$600 per month. How much will he owe the bank after the first monthly repayment?

10. Tax rates 2004-05

Taxable income	Tax on this income
\$0 – \$6,000	Nil
\$6,001 – \$21,600	17c for each \$1 over \$6,000
\$21,601 – \$58,000	\$2,852 plus 30c for each \$1 over \$21,600
\$58,001 – \$70,000	\$13,572 plus 42c for each \$1 over \$58,000
Over \$70,000	\$18,612 plus 47c for each \$1 over \$70,000

Tax rates 2005-06

Taxable income	Tax on this income
\$0 – \$6,000	Nil
\$6,001 – \$21,600	16c for each \$1 over \$6,000
\$21,601 – \$63,000	\$2,340 plus 30c for each \$1 over \$21,600
\$63,001 – \$95,000	\$14,760 plus 42c for each \$1 over \$63,000
Over \$95,000	\$28,200 plus 47c for each \$1 over \$95,000

Jason earns \$55762 salary in 2004-05, and \$65762 in 2005-06.

- Calculate Jason's tax for 2004-05.
- Calculate Jason's tax for 2005-06.
- If Jason had received his pay rise a year earlier, what would have been his change in salary to tax ratio over the two years.

11. Kaar Kostalot bought what he thought was a cheap new car costing \$15000, he found he also had to pay:

Air Conditioning	\$750
Automatic transmission	\$2000
Registration & Stamp Duty	\$1000.
Dealer Delivery Charges	\$2000

- If a deposit of \$7000 was paid, what was the remainder to be borrowed?
- Costs of registering the loan are \$145 and car insurance is \$1000. It is decided to borrow this amount also, calculate the total amount to be repaid (capital and interest) if the terms are a flat rate of 11% p.a. over 3 years.
- What is the monthly repayment for each of the 36 months?
- Kaar Kostalot decides to sell his car 3 years later to Willy Wise. The current depreciation rate for cars is 14%. Using the \$17750 price (car plus options), what is its value when it is to be sold?
- Calculate the difference between the total amount to be repaid and the new value of the car for sale.
- What is the monthly cost of having the car for Kaar Kostalot

NAME

31
34① C

①

② In flat rate interest, the amount of interest per time period does not change. In reducible interest, the amount of interest paid per time period changes. ✓ ②

$$③ A = P(1+r)^n$$

$$450 = 1000(0.7)^n$$

$$n = 3$$

$$\text{Answer} = \underline{A} \quad \checkmark \quad ②$$

$$④(a) \text{ base paid} = \frac{23400}{52} \times 0.195$$

$$= \underline{\$87.75} \text{ per week} \quad \checkmark \quad ②$$

$$(b) (450 \times 0.195) - (450 \times 0.05) - \frac{92}{52} = \text{net income per week}$$

$$\text{net income} = \underline{\$63.48} \text{ to nearest cent.} \quad \times \quad \left(\frac{1}{2}\right)$$

⑤(a) $3750 - 850 = \$2900$ needs to be borrowed
 $24 \times 155 = \$3720$ paid back including interest

$$\text{interest} = 3720 - 2900$$

$$= \underline{\$820} \quad \checkmark \quad ②$$

$$(b) I = PRT$$

$$820$$

$$= 2900 \times R \times 2$$

$$R = \frac{14.14}{100} \quad (2 \text{ dec. places.}) \quad \checkmark \quad ②$$

$$⑥ A = P(1+r)^n$$

$$= 30000(1.01875)^{48}$$

$$= \underline{\$73175.74} \quad \checkmark \quad ②$$

$$⑦(a) I = PRT$$

$$2000 = 2000 \times 0.08 \times T$$

$$T = \underline{12.5} \text{ years} \quad \checkmark \quad ②$$

$$(b) A = P(1+r)^n$$

$$4000 = 2000(1.08)^n$$

$$\underline{n = 10} \text{ years} \quad \checkmark \quad ②$$

$$⑧ A = P(1+r)^n$$

$$= 4000(1.04)^6$$

$$A = \$4101.05 \quad I = \$101.05$$

$$\text{Withdrawal} = 4101.05 - 101.05$$

$$= 4000$$

Repeated over next 6 months ①

\therefore Interest earned per year = $\$0$

11 1/2

7

$$\begin{aligned}
 (d) \quad A &= P(1-r)^n \\
 &= 17750 (0.86)^3 \\
 &= \$11,290.00 \quad \checkmark
 \end{aligned}$$

$$\begin{array}{r}
 (e) \quad 17750 \times \\
 \underline{11290} \\
 \underline{\$646}
 \end{array}
 \quad
 \begin{array}{c}
 \textcircled{\frac{1}{2}} \\
 2 \text{ years rego + insurance}
 \end{array}
 \quad
 \begin{array}{r}
 \$19810.35 - \\
 \underline{11289.99} \\
 \underline{\$8520.36}
 \end{array}$$

$$\begin{aligned}
 (f) \quad & \$550.29 + [145 \times 2 + 1000 \times 2] / 36 \\
 & = \$613.90 / \text{month.}
 \end{aligned}$$

$\textcircled{\frac{1}{2}}$

