

Q4)

Lim, Xian and Hui use smartphones as part of their everyday routine.
Lim and Xian sign up for the same mobile plan for 2 years as shown.

[Turn over

Mobile Plan Contract Details			
(Bundled Plan and Extra Surcharges are subjected to 7% GST)			
Bundled Plan			
Phone Price	\$1115	Local Free SMS	1000
Monthly Subscription	\$42	Local Free Data Bundle	3GB
Local Free Voice Calls	200 mins		
One Time Registration Charge (not subjected to GST nor service charge)			\$10.70
Extra Surcharges			
(Exceed Bundled Plan)			
Per global SMS	\$0.15	Per local SMS	\$0.0535
Excess local voice call usage billed per second			0.2675 cents/sec
Excess local mobile data charged at \$10.70 per GB or part thereof* and final capped at \$188.32 per month.			
Any additional charges on top of final capped amount will be \$2.14 per MB.			
(1GB = 1000 MB)			
*For example, if user uses excess of 1.1GB, \$21.40 will be charged.			

Lim bought a phone together with the bundled plan.

- (a) How much does Lim need to pay in **total** for using the bundled plan for 2 years if he does not incur any extra surcharges? [2]

Xian sends 1100 local SMS, makes 205 minutes 40 seconds of local voice calls and uses 6.3GB of data locally in a particular month.

- (b) How much **extra surcharge** does Xian need to pay in that month? [3]

Hui is looking for a new mobile plan contract and saw an advertisement from Eunonia Telecommunications Pte Ltd. The advertisement is on page 13.

Assume Hui's usage of SMS, calls, mobile data and global SMS is constant every month as shown below.

Local SMS: 500	Local Mobile Data: 8.5GB
Local Voice Calls: 980 minutes	Global SMS: 10

- (c) Suggest the mobile plan that Hui should choose from Eunonia Telecommunications Pte Ltd. Justify the decision you make by showing your calculations clearly. [5]

Eunonia Telecommunications Pte Ltd

With packages inclusive of 7% GST and discounts,



I can save more and use more!



Mobile Plan Name	XS	S	M
Monthly Subscription**	\$48	\$68	\$88
Discount	30% off monthly subscription		
Local Free Mobile Data	3GB	4GB	5GB
DataJump***	Additional 3GB local data at \$6/month!		
Super DataJump \$10/month!***		+5GB local data!	+ 10GB local data!
Local Free Voice Calls (Mins)	200	400	Unlimited!
Local Free SMS/MMS**	100	\$0.0535 per SMS	

**Prices are based on the mobile plan featured. All prices are inclusive of 7% GST.

*** Optional and all prices quoted are inclusive of 7% GST.

Not allowed to combine DataJump and Super DataJump and/or multiple DataJumps and/or multiple SuperDataJumps.

Eunonia Telecommunications Pte Ltd Extra Surcharges (inclusive of 7% GST) (Exceed Bundled Plan)			
Per global SMS	\$0.20	Per local SMS	\$0.06
Excess local voice call usage billed per second			0.2675 cents/sec
Excess local mobile data charged at \$10.70 per GB or part thereof* and final capped at \$238 per month. Any additional charges on top of final capped amount will be 0.0107 cents per KB. (1MB = 1000 KB) *For example, if user uses excess of 1.1GB, \$21.40 will be charged.			

(From 2018 Yishun Town Prelims Paper 2 Q10)

Q5)

Peter plans to buy a new car. He must successfully obtain the Certificate of Entitlement (COE) through bidding before he can own a car. Information on the current COE prices, quota and bids received for the different category of cars are in **Table 1**.

Table 1:

CAT A Cars up to 1600cc and 130bhp [View Past CAT A Results]			
Quota Premium	Change	Quota	Bids Received
\$25,000	↓ \$9,110	1,435	1,626

CAT B Cars above 1600cc or 130bhp [View Past CAT B Results]			
Quota Premium	Change	Quota	Bids Received
\$31,000	↓ \$2,900	1,288	1,637

Peter has shortlisted two cars. The specification and price details are in the **Table 2**.

Table 2:

Brand of car	Phantom Series X	Sky Hawk V
Engine capacity (cc)	1496	1598
Fuel type	Diesel (Euro V)	Petrol
Power (bhp)	114	165
Fuel consumption (km/l)	23.8	17.8
CO ₂ emission (g/km)	110	130
Car Price (S\$) <i>*excludes VES rebate / surcharge</i>	152, 888	147, 999
OMV (S\$)	31, 410	26, 239
Road Tax per 6 months (S\$) <i>*excludes Special Tax if any</i>	372	372

- (i) Peter said that he has a higher chance of obtaining COE for brand Phantom as compared to Sky Hawk. Do you agree? Explain why. [1]

A special tax is levied on diesel cars and is payable in addition to the Road Tax of the vehicle. The charge is S\$0.20 per cc for 6 months.

- (ii) Find the total amount of tax payable for 6 months for brand Phantom. [2]

Car buyers can either be granted rebates or imposed surcharge based on how clean the vehicle's emissions are. Vehicle Emission Scheme (VES) is based on a vehicle's carbon dioxide (CO₂) emissions, plus emissions of other pollutants.

Table 3:

Bands	CO ₂ (g/km)	HC (g/km)	CO (g/km)	NO _x (g/km)	Rebate/ surcharge(-/+) for cars (\$)
A1	A1 ≤90	A1 ≤0.020	A1 ≤0.150	A1 ≤0.007	-20,000
A2	90< A2 ≤125	0.020< A2 ≤0.036	0.150< A2 ≤0.190	0.007< A2 ≤0.013	-10,000
B	125< B ≤160	0.036< B ≤0.052	0.190< B ≤0.270	0.013< B ≤0.024	0
C1	160< C1 ≤185	0.052< C1 ≤0.075	0.270< C1 ≤0.350	0.024< C1 ≤0.030	+10,000
C2	C2 >185	C2 >0.075	C2 >0.350	C2 >0.030	+20,000

- (iii) Use **Tables 2 and 3** to determine the price of brand Phantom car, **including** the VES rebate / surcharge, if any. [1]

Peter decided to take a 5-year bank loan for purchase of the car.

The interest rate is at 2.78% per annum.

The Maximum Loan Amount will be dependent on the Open Market Value (OMV) of the car.

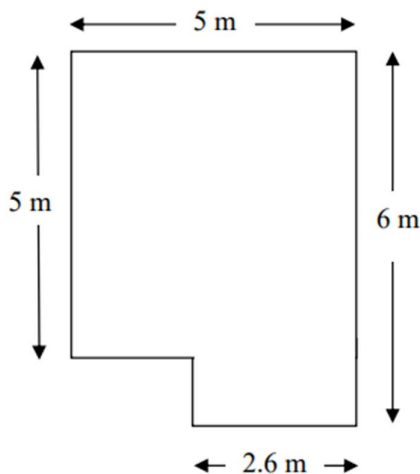
Cars with OMV exceeding \$20,000 will be entitled to a maximum loan value of 60% of car price with minimum 40% down payment.

- (iv) Calculate the minimum down payment Peter has to pay if he decides to buy brand Phantom. [2]
- (v) Peter decides to take a 60% loan. Suggest which car Peter should buy. Justify the decision you make and show your calculations clearly. [5]

(From 2018 Tanjong Katong Prelims Paper 2 Q10)

Q6)

- (a) Mrs Wong had a budget of \$2000 to spend on buying new kitchen flooring. A sketch of the kitchen floor plan is shown below. All angles shown in the diagram are right angles.



Mrs Wong planned to use either tiles or single coloured vinyl floor covering to cover the whole of the kitchen floor.

Each square tile measures 20 cm by 20 cm.

A box of 25 floor tiles costs \$66.25.

Floor tiles are only sold in complete boxes.

The vinyl floor covering is cut to the required length from a roll.

A roll of vinyl floor covering is 1.8 metres wide and is sold at a price of \$118.70 per metre length.

It is sold in lengths measured in a whole number of metres only.

Are both types of flooring materials within Mrs Wong's budget?

Show all your working and give reasons for your answers.

[5]

- (b) Mrs Wong saw an advertisement for a refrigerator and bought it using a payment plan. The total price of the payment plan is 12% more than the advertised price. The payments are calculated as shown.

- deposit of one-third of total price
- 8 equal instalments of \$92.60 per month
- final payment of \$200

Find the advertised price.

[3]

- (c) Mrs Wong also bought a washer which cost \$569.24, inclusive of 7% Goods and Services Tax (GST). Find the amount of GST paid by Mrs Wong.

[2]

