

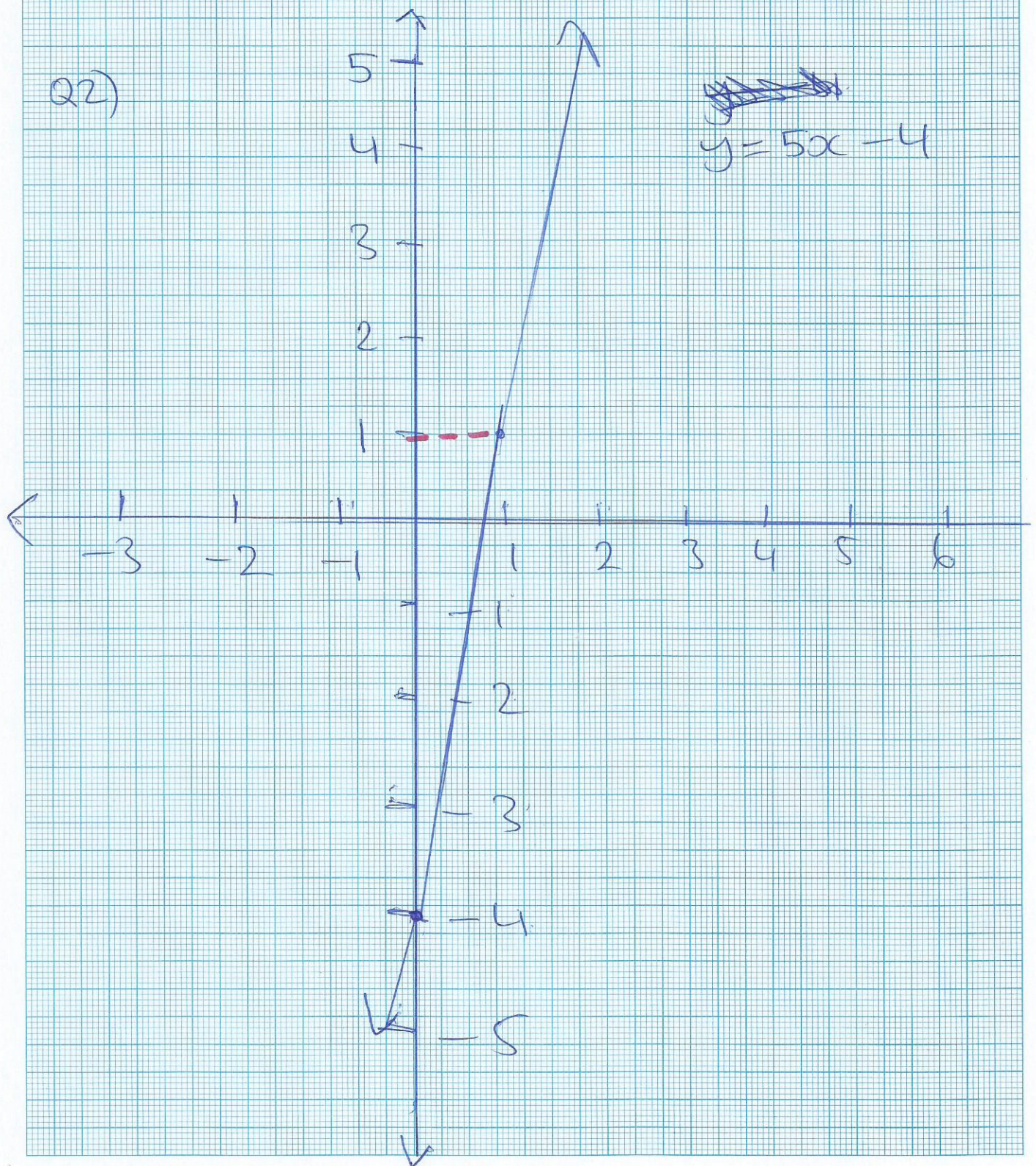
Section A: Linear Functions

Q1) (6, 5) and (8, 6)

$$\frac{6-5}{8-6}$$

$$= \frac{1}{2}$$

Q2)



Q3)

a) $C = KN$

b) $C = KN$

$$\frac{\$40}{32} = \frac{K(32)}{32}$$

$$K = \frac{\$40}{32}$$

$$K = \$1.25$$

c) $C = KN$

$$C = 1.25 \times 50$$

$$C = \$62.50$$

d) The cost is determined by the litres of fuel that can be purchased. There is a limit on how much fuel can be filled into a car's tank.

Q4)

a)

i)

N	0	75	150
1	\$5000	6,775	18,550

$$\begin{aligned} & (0 \times 157) - 5000 \\ &= 0 - 5000 \\ &= \$-5000 \end{aligned}$$

$$\begin{aligned} & (75 \times 157) - 5000 \\ &= 11,775 - 5000 \\ &= 6,775 \end{aligned}$$

$$\begin{aligned} & (150 \times 157) - 5000 \\ &= 23,550 - 5000 \\ &= 18,550 \end{aligned}$$

Q4)

a)

ii) See attached graph

b)

$$\begin{aligned} \text{i)} & (90 \times 157) - 5000 \\ &= 14,130 - 5000 \\ &= 9,130 \end{aligned}$$

$$\begin{aligned} \text{ii)} & 5000 \div 157 = 31.84 \\ &= 32 \end{aligned}$$

$$32 \times 157 = 5024$$

$$5024 - 5000 = 24$$

Therefore 32 is the minimum number of articles that must be produced to cover fixed costs.

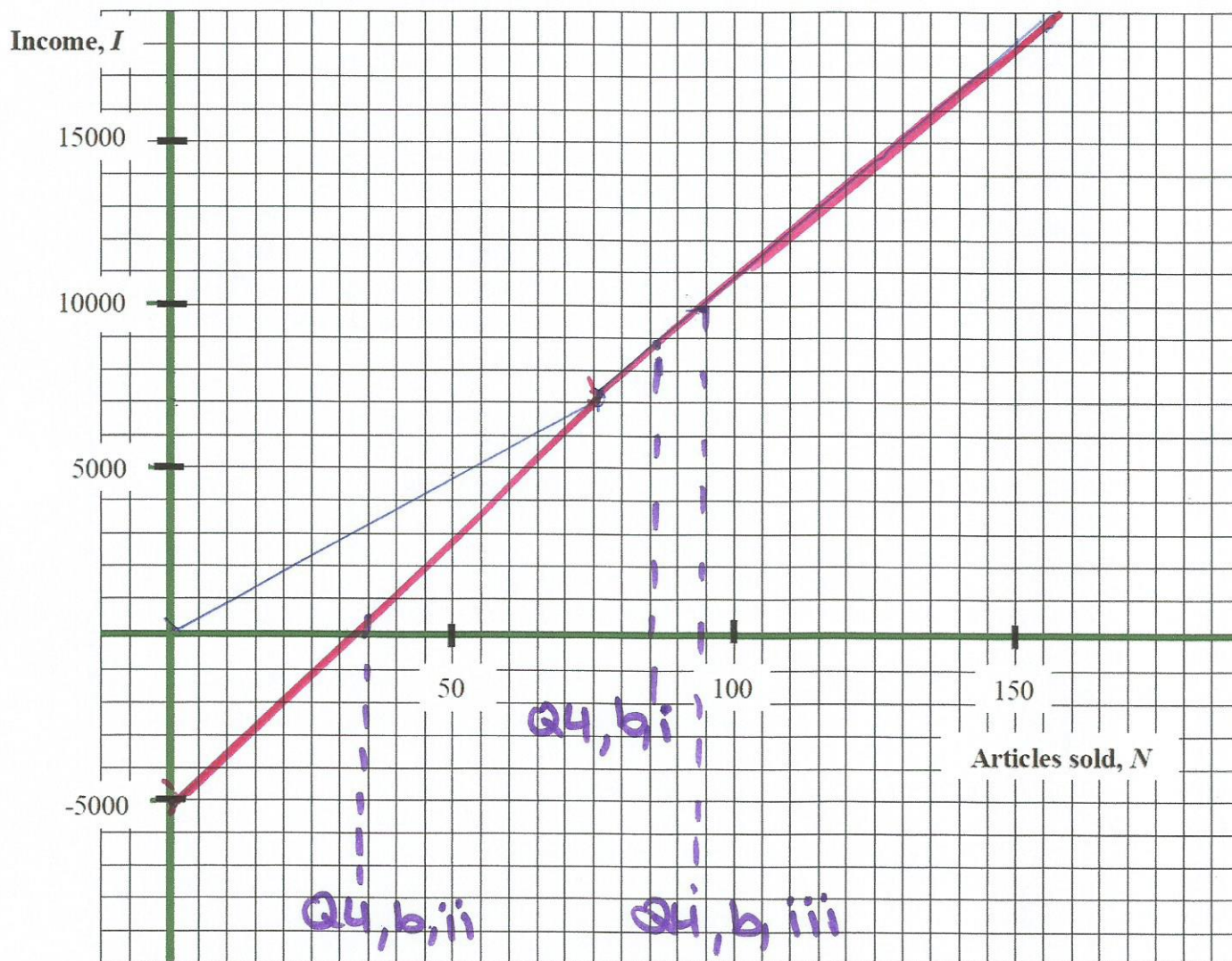
$$\text{iii)} \quad \$10,000 = \text{annual income}$$

$$\$5,000 = \text{fixed costs}$$

$$10,000 + 5,000 = \$15,000$$

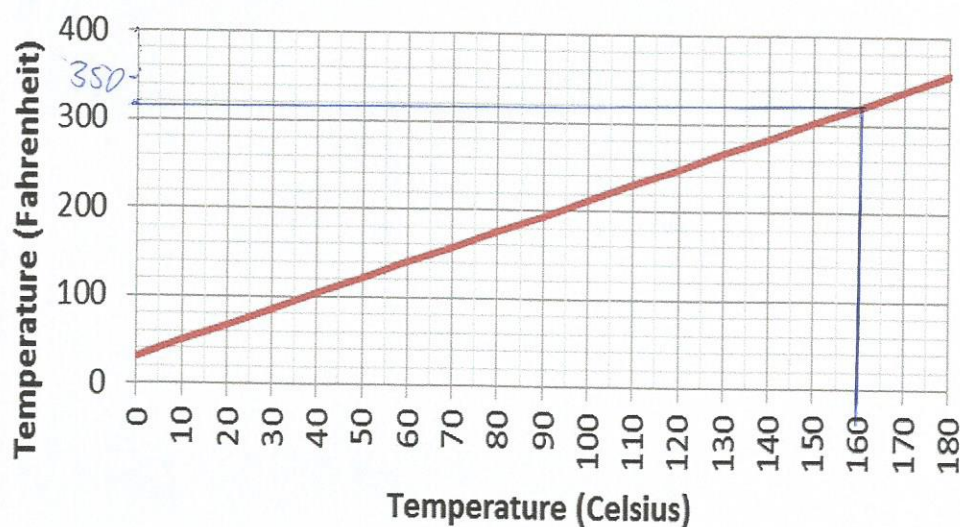
$$\begin{aligned} 15,000 \div 157 &= 95.54 \\ &= 96 \end{aligned}$$

Grid for question 4/Section A (ATTACH TO YOUR ANSWER SHEET) Name: Rachel Loveckay



- 5 Lucy found an old recipe for a carrot cake, which needed to be cooked at 325°F . She uses the fact that freezing point is 0°C or 32°F and that boiling point is 100°C or 212°F to draw the conversion graph below.

Celsius to Fahrenheit conversion



Use Lucy's graph to find what temperature in Celsius ($^{\circ}\text{C}$) she should set her oven to cook the carrot cake using this recipe.

$$325^{\circ}\text{F} = 160^{\circ}\text{C}$$

Section B: Interest & Depreciation

$$Q1) \frac{25}{100} \times 200 = \$50$$

$$200 - 50 = \$150$$

$$\frac{10}{100} \times 150 = \$15$$

$$\$150 - \$15 \\ = \$135$$

Q2)

$$a) I = Prn$$

$$I = 25,000 \times 0.085 \times 2$$

$$I = \$4,250$$

$$b) I = Prn$$

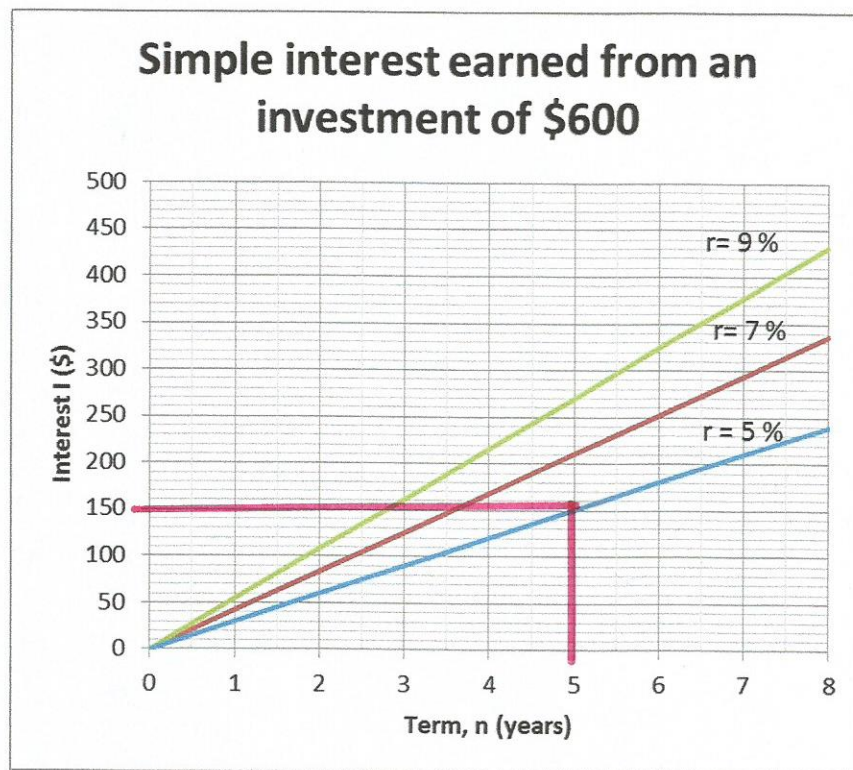
$$1125 = 6000 \times r \times 5$$

$$\frac{1125}{30,000} = \frac{30,000 r}{30,000}$$

$$r = 0.0375$$

$$= 3.75\% \text{ pa}$$

- 3 The graph below shows the simple interest earned on a principal of \$600 for up to 8 years at three different annual interest rates.



According to this graph, how long will it take a principal of \$600 to earn \$150 if the interest rate is 5% p.a.?

5 years

Q4)

$$a) S = V_0 - Dn$$

$$S = 80,000 - (5000 \times 5)$$

$$S = 80,000 - 25,000$$

$$S = \$55,000$$

$$b) S = V_0 - Dn$$

$$V_0 = 80,000$$

$$D = 5,000$$

$$S = 40,000$$

$$n = ?$$

~~$$40,000 = 80,000 - 5,000 \times n$$~~

$$40,000 = 80,000 - 5,000 \times n$$

$$40,000n = 80,000 - 5,000$$

$$40,000n = 75,000$$

$$n = \frac{75,000}{40,000}$$

$$n = \del{1.875} 1.875 \text{ years}$$

Q5)

a) \$17,500

b) $\$27,500 - \$17,500$
 $= \$10,000$

c) $S = V_0 - Dn$

$$0 = 27,500 - 2,500 \times n$$

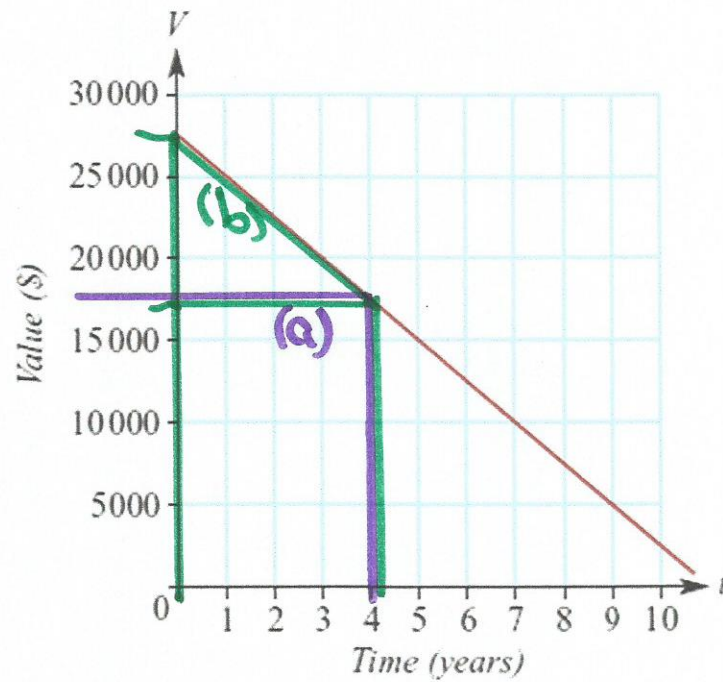
$$0 = 27,500 - 2,500n$$

$$2500n = 27,500$$

$$n = \frac{27,500}{2,500}$$

$$n = 11 \text{ years}$$

- 5 The graph below shows the depreciation of a car over its useful life.



- a) How much was the car worth after 4 years?
- b) How much was the total depreciation in the first 4 years?
- c) How many years will it take to have a salvage value of \$0?

Section C: Owning A Car

Q1) Toyota Premium = \$320

$$\begin{aligned}\text{Discount} &= 12/100 \times 320 \\ &= \$38.40 \\ &= 320 - 38.40 \\ &= \$281.60\end{aligned}$$

$$\begin{aligned}\text{Surcharge} &= 8/100 \times 281.60 \\ &= \$22.528 \\ &= \$22.53 \\ &= 281.60 + 22.53 \\ &= \$304.13\end{aligned}$$

$$\text{Total} = \$304.13$$

Q2) Vehicle value = \$0

$$\begin{aligned}\text{a) Stamp Duty} &= 3/100 \times 0 \\ &= \$0\end{aligned}$$

Vehicle value = \$15,000

$$\begin{aligned}\text{Stamp Duty} &= 3/100 \times 15,000 \\ &= \$450\end{aligned}$$

Vehicle value = \$30,000

$$\begin{aligned}\text{Stamp Duty} &= 3/100 \times 30,000 \\ &= \$900\end{aligned}$$

Q2) (cont)
a)

$$\text{Vehicle value} = \$45,000$$

$$\begin{aligned}\text{Stamp Duty} &= 3/100 \times 45,000 \\ &= \$1,350\end{aligned}$$

$$\text{Vehicle value} = \$50,000$$

$$\begin{aligned}\text{Stamp Duty} &= 3/100 \times 45,000 \\ &= \$1,350\end{aligned}$$

$$= 5/100 \times (50,000 - 45,000)$$

$$= 5/100 \times 5,000$$

$$= \$250$$

$$\begin{aligned}\text{Total Stamp Duty} &= \$1,350 + \$250 \\ &= \$1,600\end{aligned}$$

$$\text{Vehicle value} = \$60,000$$

$$\begin{aligned}\text{Stamp Duty} &= 3/100 \times 45,000 \\ &= \$1,350\end{aligned}$$

$$= 5/100 \times (60,000 - 45,000)$$

$$= 5/100 \times 15,000$$

$$= \$750$$

$$\begin{aligned}\text{Total Stamp Duty} &= \$1,350 + \$750 \\ &= \$2,100\end{aligned}$$

- 2 Stamp duty on private vehicles is calculated at the rate of 3% of the purchase price up to \$45 000 plus 5% for every dollar over \$45 000.

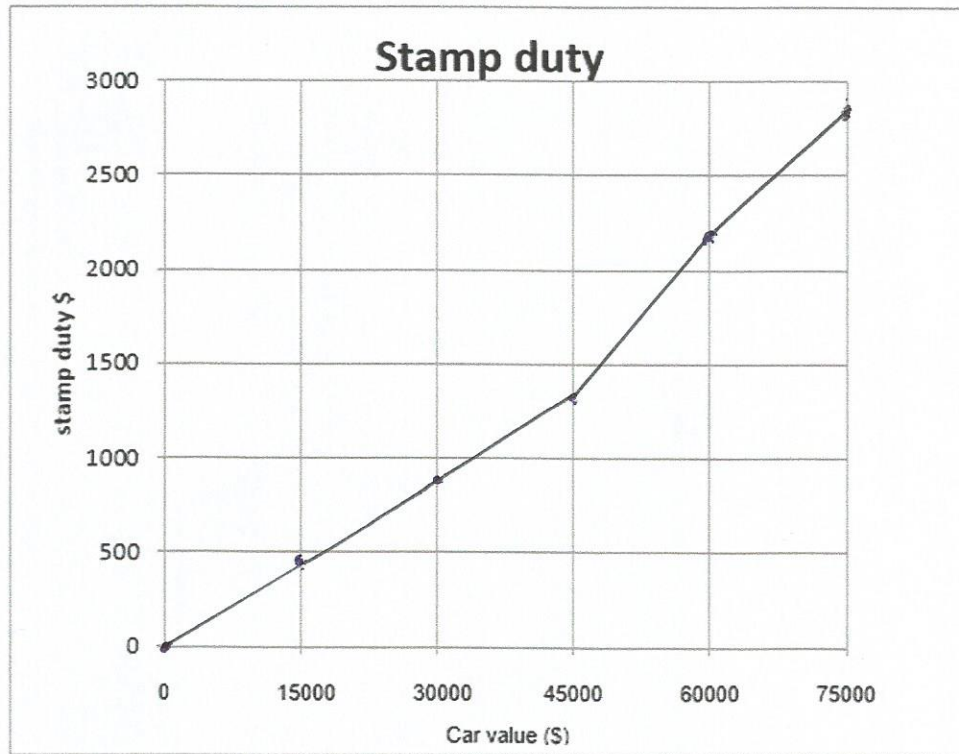
- a) Copy and complete the table of values below showing purchase prices up to \$50 000.

Vehicle Value (\$)	0	15 000	30 000	45 000	50 000	60 000
Stamp Duty (\$)	0	450	900	1350	1600	2100

- b) Use your completed table to construct a graph on the graph paper provided at the end of this assignment.

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Grid for question 2b) / Section C (ATTACH TO YOUR ANSWER SHEET) Name: RACHEL LOVEDAY



Checklist

I have:

- answered all questions on my own paper in my own hand-writing
- written clear working
- attempted all questions
- included all graphs.

If you are unable to complete this task for a specific reason, please contact your teacher to discuss alternative arrangements for demonstrating your skills and knowledge.



$$Q3) \text{ Purchase Price} = \$48,500$$

$$\text{GST} = 10/100 \times 48,500 \\ = \$4,850$$

$$\$48,500 + \$4,850 \\ = \$53,350$$

$$\text{Stamp Duty} = 4/100 \times 53,350 \\ = \$2,134$$

$$\text{Total Cost} = \$53,350 + \$2,134 + \$834 \\ + \$50 + \$876 + \$1,240 \\ = \$58,484$$

$$Q4) \text{ a) } (350 \times 2) + (\$151 \times 2) + (40 \times 52.18) + \\ (28 \times 52.18)$$

$$= 700 + 302 + 2,087.20 + 1,461.04 \\ = \$4,550.24$$

$$\text{b) Cost for one year} = \$4,550.24$$

$$\text{Cost per week} = \$4,550.24 \div 52.18 \\ = \$87.20275968 \\ = \$87.20 \\ = \$87$$



$$Q5) \text{ Fuel for } 100\text{ km} = 9\text{ L}$$

$$\begin{aligned}\text{Fuel for } 1\text{ km} &= \frac{9}{100} \\ &= 0.09\text{ L}\end{aligned}$$

$$\begin{aligned}\text{Fuel for } 375\text{ km} &= 0.09 \times 375 \\ &= 33.75\text{ L}\end{aligned}$$

$$\begin{aligned}Q6) \text{ Interest} &= \$28,000 \times 0.09 \times 3 \\ &= \$7,560\end{aligned}$$

$$\begin{aligned}\text{Total to repay} &= \$28,000 + \$7,560 \\ &= \$35,560\end{aligned}$$

$$\begin{aligned}\text{No. of weeks in } 3\text{ yrs} &= 52.18 \times 3 \\ &= 156.54\end{aligned}$$

$$\begin{aligned}\text{Weekly amount} &= \frac{35,560}{156.54} \\ &= \$227.1623866 \\ &= \$227.17\end{aligned}$$