

Lesson 6

Simple Interest and Linear Growth.

Support Questions

①

	Principle	Rate	Time	Interest.
(a)	\$485	2.75%	1.5 years	\$20.01
(b)	\$1449.75	4 3/4%	90 days	\$16.98
(c)	\$895	5%	8 months	\$23.84
(d)	\$925	4%	180 days	\$18.25

(a) $P = \$485$

$$r = 2.75\% \div 100 = 0.0275$$

$$t = 1.5 \text{ years}$$

$$I = ?$$

$$I = Prt = \$485 \times \frac{2.75}{100} \times 1.5$$

$$I = \$20.01$$

(b) $P = ?$

$$r = 4.75/100 = 0.0475$$

$$t = \frac{90}{365} \text{ years}$$

$$I = \$16.98$$

$$I = Prt$$

$$\$16.98 = P \times 0.0475 \times \frac{90}{365}$$

$$P = \frac{\$16.98 \times 365}{0.0475 \times 90}$$

$$P = \$1449.75$$

(c) $P = \$895$

$$r = ?$$

$$t = \frac{8}{12} = \frac{2}{3} \text{ years}$$

$$I = \$23.84$$

$$I = Prt$$

$$\$23.84 = \$895 \times r \times \frac{2}{3}$$

$$r = \frac{23.84 \times 3}{895 \times 2}$$

$$r = 0.0500$$

as a percentage

$$r = 0.05 \times 100$$

$$r = 5\%$$

(d)

$$P = \$925$$

$$r = \frac{4}{100} = 0.04$$

$$t = ?$$

$$I = \$18.25$$

$$I = Prt$$

$$\$18.25 = \$925 \times 0.04 \times t$$

$$t = \frac{18.25}{925 \times 0.04}$$

$$t = \frac{73}{148} \text{ years}$$

$$t = 180 \text{ days}$$

$$(2) P = \$1236.90$$

$$r = \frac{18.2}{100} = 0.182$$

$$t = \frac{80}{365} \text{ years.}$$

$$I = ?$$

$$I = Prt$$

$$I = \$1236.90 \times 0.182 \times \frac{80}{365}$$

$$\underline{I = \$49.34}$$

$$(3) P = \$500$$

$$t = 3 \text{ years.}$$

$$I = \$26.25$$

$$r = ?$$

$$I = Prt$$

$$\$26.25 = \$500 \times r \times 3$$

$$r = \frac{7}{400}$$

as a percentage.

$$r = \frac{7}{400} \times 100$$

$$r = 1.75\%$$

$$(4) r = 8.75\% = 0.0875$$

$$I = \$75.75$$

$$t = 14/12 \text{ years}$$

$$P = ?$$

$$I = Prt$$

$$\$75.75 = P \times 0.0875 \times \frac{14}{12}$$

$$P = \frac{\$75.75 \times 12}{14 \times 0.0875}$$

$$P = \$742.04$$

Key Question #6

(1)

	Principle	Rate	Time	Interest
a	\$500	4%	0.9 years.	\$18
b	\$1200	5%	6 years.	\$360
c	\$1387	3%	3 months	\$10.40
d	\$1100	3.4%	720 days	\$73.78

(a) $I = Prt$

$$\$18 = \$500 \times \frac{4}{100} \times t$$

$$t = \frac{18}{20} = 0.9 \text{ years.}$$

(b) $I = Prt$

$$\$360 = P \times 0.05 \times 6$$

$$P = \$1200$$

(c) $I = Prt$

$$\$10.40 = \$1387 \times r \times \frac{3}{12}$$

$$r = 0.03$$

rate as a percentage.

$$r = 3\%$$

(d) $I = Prt$

$$I = \$1100 \times \frac{3.4}{100} \times \frac{720}{365}$$

$$I = \$73.78$$

$$(2) \quad r = 3.5\% = 0.035$$

$$P = \$1374.67$$

$$t = 31 \text{ days} = \frac{31}{365} \text{ years}$$

$$I = Prt$$

$$I = \$1374.67 \times 0.035 \times \frac{31}{365}$$

$$I = \$4.09$$

$$(3) \quad P = \$500$$

$$I = \$1.54$$

$$t = \frac{25}{365} \text{ years}$$

$$r = ?$$

$$I = Prt$$

$$\$1.54 = \$500 \times r \times \frac{25}{365}$$

$$r = \frac{1.54 \times 365}{500 \times 25}$$

$$r = 0.04496$$

as a percentage

$$r = 4.5\%$$

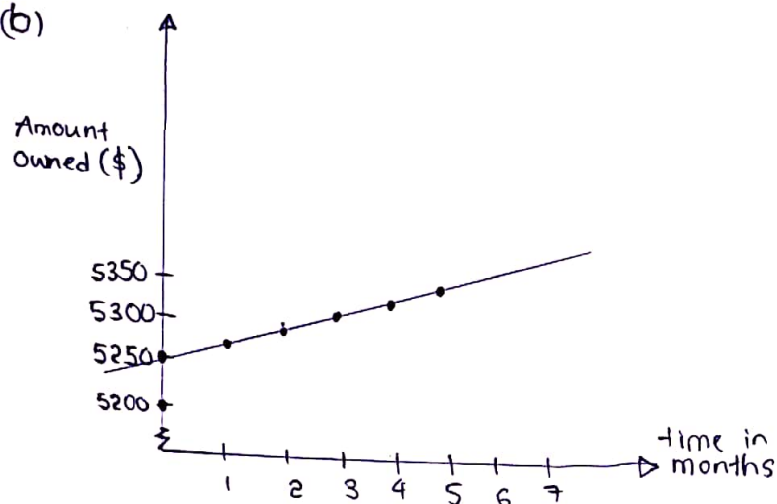
$$(4) \quad P = \$5250$$

$$r = 4.8\% = 0.048$$

$$\text{Interest per month} = \$5250 \times 0.048 \times \frac{1}{12} = \$21$$

Month	Interest Owed \$(I=Prt)\$	Amount Owed \$(A=P+I)\$
1	\$21	\$5271
2	\$42	\$5292
3	\$63	\$5313
4	\$84	\$5334
5	\$105	\$5355

(b)



(c) The relationship between time in months and the amount owed is linear because the rate of change is constant and the line on the graph is a straight line.

(5)

$$P = \$875$$

$$r = 5.2\%$$

$$I = \$22.44$$

$$I = Prt$$

$$\$22.44 = \$875 \times 0.052 \times t$$

$$t = \frac{22.44}{875 \times 0.052}$$

$$t = 0.493 \text{ years}$$

(6) Yes, as the graph is linear, it will double.

Lesson 7.

Compound Interest and Exponential Growth

Support Questions.

① (a) $P = \$375$.

$$i = \frac{0.035}{12} = 0.00292.$$

$$n = 12 \times 4 = 48.$$

$$A = P(1+i)^n$$

$$A = \$375(1.00292)^{48}$$

$$A = \$431.26$$

② (b) $P = \$100,000$

$$i = \frac{5.25}{100 \times 2}$$

$$n = 2 \times 6 = 12.$$

$$A = P(1+i)^n$$

$$A = 100,000 \left(1 + \frac{5.25}{200}\right)^{12}$$

$$A = \$136470.27.$$

(c) $P = \$235$

$$i = \frac{7.68}{100 \times 365}$$

$$n = 365 \times 20$$

$$A = P(1+i)^n$$

$$A = 235 \left(1 + \frac{7.68}{100 \times 365}\right)^{365 \times 20}$$

$$A = \$1091.67$$

(2) (a) $P = \$2500$

$$i = \frac{4.25}{100}$$

$$n = 7 \times 1.$$

$$A = P(1+i)^n.$$

$$A = 2500(1+0.0425)^7$$

$$A = \$3345.59.$$

(b) Interest = $A - P$

$$= 3345.59 - 2500$$

$$= \$845.59.$$

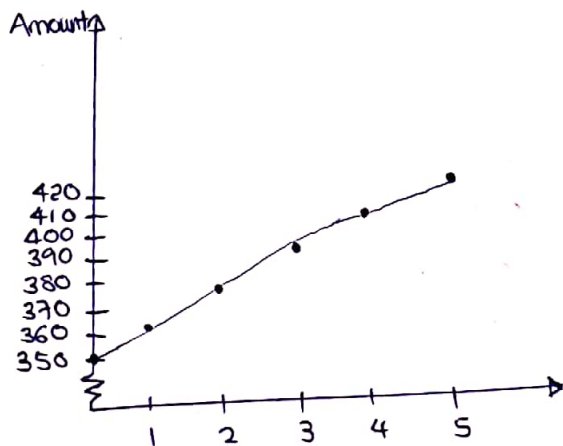
(3) (a) $P = \$350$

$$i = \frac{3.75}{100 \times 1}$$

$$n = 5$$

$$A = 350(1+0.0375)^n.$$

(Year) n	Amount.
1	350 \$363.125
2	\$376.75
3	\$390.87
4	\$405.52
5	\$420.73



(b) No it isn't. Since the differences in amount in amount are not constant the graph is not linear.

key Question #7.

(1) $P = \$600$

$$i = \frac{4}{12 \times 100}$$

$$n = 12 \times 6.5$$

$$A = P(1+i)^n$$

$$A = \$600 \left(1 + \frac{4}{1200}\right)^{12 \times 6.5}$$

$$A = \$777.82$$

$$\begin{aligned}\text{Interest} &= A - P \\ &= \$177.82\end{aligned}$$

(2) $P = \$875$

$$i = \frac{2.8}{100 \times 4}$$

$$n = 10 \times 4$$

$$A = P(1+i)^n$$

$$A = 875 \left(1 + \frac{2.8}{400}\right)^{40}$$

$$A = \$1156.61$$

(3) $P = \$500$
 $A = P(1+i)^n$

Plan A

$$i = \frac{6.75}{100 \times 4}$$

$$n = 2$$

$$A = 500 \left(1 + \frac{6.75}{100}\right)^2$$

$$A = \$569.79$$

Plan B

$$i = \frac{6.6}{100 \times 4}$$

$$n = 8$$

$$A = 500 \left(1 + \frac{6.6}{400}\right)^8$$

$$A = \$569.94$$

Plan B is better.

∴ The amount after 2 years is greater in Plan B.

$$(4) P = \$937.21$$

$$i = \frac{4.5}{12 \times 100}$$

$$n = 6$$

$$A = P(1+i)^n$$

$$= 937.21 \left(1 + \frac{4.5}{1200}\right)^6$$

$$A = \$958.50$$

$$\text{Interest} = 958.50 - 937.21$$

$$= \$21.29$$

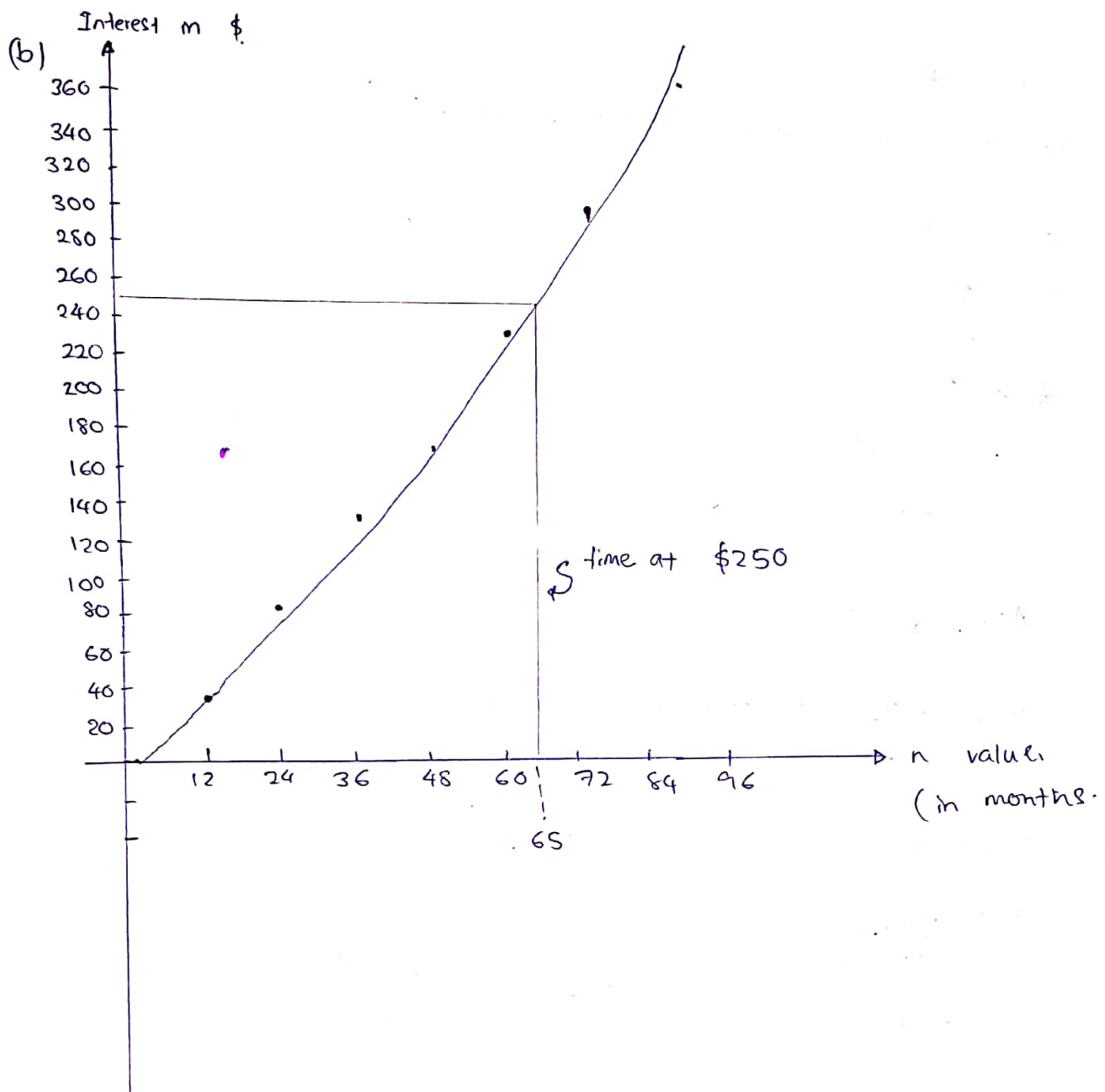
$$(5)(a) P = \$500$$

$$i = \frac{7.5}{100 \times 12}$$

$$n = 12 \times 7$$

$$A = 500 \left(1 + \frac{7.5}{1200}\right)^n$$

year.	n	Amount	Interest	Accumulated interest
1	12	\$538.82. \$6037.5	\$38.82	\$38.82
2	24	\$580.65	\$41.83	\$80.65
3	36	\$625.72	\$45.07	\$125.72
4	48	\$674.30	\$48.58	\$174.30
5	60	\$726.65	\$52.35	\$226.65
6	72	\$783.06	\$56.41	\$283.06
7	84	\$843.85	\$60.79	\$343.85



(c) 5 years and 5 months (65 months)

Lesson 8

Compound Interest formulae.

Support Questions.

(1) $P = \text{?}$

$$i = \frac{6.5}{4 \times 100}$$

$$n = 16$$

$$A = \$1500$$

$$A = P(1+i)^n$$

$$1500 = P \left(1 + \frac{6.5}{4 \times 100} \right)^{16}$$

$$P = \$1159$$

Money that Tricia can spend on DVD player = $1500 - 1159$

$$= \$341$$

(2) $P = ?$

$$i = \frac{12.5}{100 \times 12}$$

$$n = 36$$

$$A = \$1426.73$$

$$A = P(1+i)^n$$

$$1426.73 = P \left(1 + \frac{12.5}{100 \times 12} \right)^{36}$$

$$P = \$982.48$$

(3) $P = 2$

$$A = 2A$$

$$n = 52t \times 12 \text{ (let 't' be time in years.)}$$

$$i = \frac{6.5}{100 \times 52}$$

$$A = P(1+i)^n$$

$$2A = 2 \left(1 + \frac{6.5}{5200} \right)^{52t}$$

$$52t = 554.86$$

$$t = 10.67 \text{ years}$$

(4)

$$P = \$200$$

$$A = \$349.82$$

$$i = ? \Rightarrow \frac{i}{100 \times 2} \%$$

$$n = 8 \times 2 = 16$$

$$A = P(1+i)^n$$

$$349.82 = 200 \left(1 + \frac{i}{200}\right)^{16}$$

by guessing

$$1.03556 = 1 + \frac{i}{200}$$

$$200 \times 0.03556 = i$$

$$i = 7.11\%$$

Key Questions #8

(1) $P = ?$

$$i = \frac{4.28}{100 \times 2}$$

$$A = \$3500$$

$$n = 9 \times 2 = 18$$

$$A = P(1+i)^n$$

$$3500 = P(1+0.0214)^{18}$$

$$P = \frac{3500}{(1+0.0214)^{18}}$$

$$P = \$2390.80$$

(2) $A = \$45000$

$$n = 25 \times 12 = 300$$

$$i = \frac{6.35}{100 \times 12}$$

$$P = ?$$

$$A = P(1+i)^n$$

$$45000 = P \left(1 + \frac{6.35}{1200}\right)^{300}$$

$$P = \$9238.21$$

$$\text{Money that Haley can spend now} = \$25000 - \$9238.21$$

$$= \$15761.79$$

(3) $P = a$

$$A = 2a$$

$$n = 4t \quad (\text{let 't' be time in years})$$

$$i = \frac{4.5}{100 \times 4}$$

$$A = P(1+i)^n$$

$$2a = a \left(1 + \frac{4.5}{400}\right)^{4t}$$

$$2 = \left(1 + \frac{4.5}{400}\right)^{4t}$$

$$4t = 61.96$$

$$t = 15.49 \text{ years}$$

$$(4) \quad P = \$750$$

$$A = \$915.14$$

$$n = 5 \times 4.$$

$$i = \frac{i}{4 \times 100}$$

$$A = P(1+i)^n.$$

$$915.14 \approx 750 \left(1 + \frac{i}{400}\right)^{20}$$

After guessing

$$i = 4\%.$$

(5) let,

	Annually	Monthly
i	i	$i/12.$
P	P	P
A	A	A'
n	n	$12n.$
	$A = P(1+i)^n$	$A' = P \left(1 + \frac{i}{12}\right)^{12n}.$

$$A < A'$$

in most instances.

$\therefore$ compounded monthly is better.

Lesson a

Loans & RRSP's.

Support Questions.

$$(1) \quad n = 36$$

$$R = \$68.$$

$$i = \frac{10.5}{12 \times 100} = 0.00875$$

$$n = 36$$

$$PV = R \left[\frac{1 - (i+1)^{-n}}{i} \right]$$

$$PV = 68 \left[\frac{1 - (0.00875 + 1)^{-36}}{0.00875} \right]$$

$$PV = \$2092.15$$

$$(2) \quad R = \$50$$

$$n = 26 \times 4$$

$$i = \frac{7.6}{100 \times 26}$$

$$PV = ?$$

$$PV = R \left[\frac{1 - (i+1)^{-n}}{i} \right]$$

$$PV = 50 \left[\frac{1 - \left(\frac{7.6}{2600} + 1 \right)^{-26 \times 4}}{\frac{7.6}{2600}} \right]$$

$$PV = \$4478.36$$

$$(3) \quad PV = 12000$$

$$i = \frac{14.35}{100 \times 12} = 0.011958$$

$$n = 5 \times 12 = 60$$

$$R = ?$$

$$PV = R \frac{[1 - (i+1)^{-n}]}{i}$$

$$12000 = R \frac{[1 - (\frac{14.35+11}{100 \times 12})^{-60}]}{[\frac{14.35}{12 \times 100}]}$$

$$R = \$ 281.40$$

$$(4) \quad \text{Financed amount} = \$6575 - \$650$$

$$(PV) = \$ 5925$$

$$i = \frac{12.8}{100 \times 12} = 0.01067$$

$$n = 3 \times 12 = 36$$

$$R = ?$$

$$PV = R \frac{[1 - (i+1)^{-n}]}{i}$$

$$5925 = R \frac{[1 - 1.01067^{-36}]}{0.01067}$$

$$R = \$ 199.078$$

$$\text{total payment} = 199.078 \times 36$$

$$= \$ 7166.799 \approx \$ 7166.8$$

$$\text{Interest} = 7166.8 - 5925$$

$$= \$ 1241.8$$

(5)

Jake.

$$PV = \$9380$$

$$n = 5 \times 12 = 60$$

$$i = \frac{9.45}{1200} = 0.007875$$

$$R_J = ?$$

Emily

$$i = \frac{11.3}{1200} = 0.009417$$

$$R_E = ?$$

$$PV = \frac{R[1 - (1+i)^{-n}]}{i}$$

for Jake.

$$9380 = \frac{R_J [1 - 1.007875^{-60}]}{0.007875}$$

$$R_J = \$196.77$$

for Emily

$$9380 = \frac{R_E [1 - 1.009417^{-60}]}{0.009417}$$

$$R_E = \$205.35$$

$$\Delta \text{ in interest} = [R_E - R_J] n$$

$$= [205.35 - 196.77] \times 60$$

$$= \$514.8$$

(6)

$$R = \$1500.$$

$$A = ?$$

$$i = \frac{6.25}{200} = 0.03125$$

$$n = 40$$

$$A = \frac{R[(1+i)^n + 1]}{i}$$

$$A = \frac{1500[(1.03125)^{40} + 1]}{0.03125}$$

$$A = \$33982.11$$

(7)

$$A = \frac{R[(1+i)^n - 1]}{i}$$

$$n = 38 \text{ years} \times 26 = 988$$

$$R = \frac{1,000,000 \left(\frac{0.0675}{26} \right)}{\left[\left(1 + \frac{0.0675}{26} \right)^{988} - 1 \right]}$$

$$R = \$217.11.$$

Yes it is reasonable, because Josh makes good money and does not have any debts or bills to pay.

Key Questions #9.

$$(1) \quad i = \frac{15.2}{12 \times 100} = 0.0127.$$

$$n = 18$$

$$R = 31.48$$

$$PV = ?$$

$$PV = \frac{R [1 - (i+1)^{-n}]}{i}$$

$$= \frac{31.48 [1 - 1.0127^{-18}]}{0.0127}$$

$$PV = \$503.69$$

$$(2) \quad PV = 6995 - 1200$$

$$= \$5795$$

$$i = \frac{10.4}{1200} = 0.00867.$$

$$\frac{36 \text{ months}}{n_1} = 36 \text{ months.}$$

$$R_1 = ?$$

$$PV = R \left[\frac{1 - (i+1)^{-n}}{i} \right]$$

$$5795 = R_1 \left[\frac{1 - 1.00867^{-36}}{0.00867} \right]$$

$$R_1 = \$188.09$$

48 months

$$n_2 = 48$$

$$R_2 = ?$$

$$5795 = R_2 \left[\frac{1 - 1.00867^{-48}}{0.00867} \right]$$

$$R_2 = \$148.10$$

Interest saved
if paid in 36 months

$$= 148.1 \times 48 - 188.09 \times 36$$

$$= \$337.56$$

$$(3) \quad PV = \$9875$$

$$n = 26 \times 4 = 104$$

$$i = \frac{6.3}{100 \times 26} = 0.002423$$

$$R = ?$$

$$PV = R \frac{[1 - (1+i)^{-n}]}{i}$$

$$9875 = R \frac{[1 - 1.002423^{-104}]}{0.002423}$$

$$R = \$107.53$$

$$(4) \quad PV = \$22500$$

$$i = \frac{8.62}{12 \times 100} = 0.00719$$

$$n = 12 \times 12 = 144$$

$$(a) \quad R = ?$$

$$PV = R \frac{[1 - (1+i)^{-n}]}{i}$$

$$22500 = R \frac{[1 - 1.00719^{-144}]}{0.00719}$$

$$R = \$251.37$$

$$(b) \quad \text{interest for 12 years} = 251.37 \times 144 - 22500 \\ = \$13696.69$$

$$(5) \quad PV = \$5000$$

$$n = 12 \times 3 = 36$$

$$i = \frac{12}{12 \times 100} = 0.01$$

$$R = ?$$

$$(a) \quad PV = R \frac{[1 - (1+i)^{-n}]}{i}$$

$$5000 = R \frac{[1 - 1.01^{-36}]}{0.01}$$

$$R = \$166.07$$

$$(b) \quad \text{balance of loan} = 5000 \times \frac{2}{3} = \$3333.33$$

$$(c) \quad \text{Saved amount} = 166.07 \times 24 - 3333.33 \\ = \$652.35$$

$$(6) \quad R = \$125$$

$$n = 26 \times 12 = 312$$

$$i = \frac{7.5}{12 \times 100} = 0.00625$$

$$(a) \quad R = ?$$

$$A = R \frac{[(1+i)^n - 1]}{i}$$

$$A = 125 \frac{[1.00625^{312} - 1]}{0.00625}$$

$$A = \$118855.42$$

(b)

$$PV = \$118855.42$$

$$i = \frac{7.5}{1200} = 0.00625$$

$$N = 20 \times 12 = 240$$

$$PV = R \frac{[1 - (1+i)^{-N}]}{i}$$

$$118855.42 = R \frac{[1 - 1.00625^{-240}]}{0.00625}$$

$$R = \$1001.56$$

Lesson 10

Buying new/used vehicles and vehicle cost.

$$(1) \text{ Price of van} = (16550 + 1175) \times 1.13$$

$$= \$ 20029.25$$

$$(2) \text{ Cost} = 31690 \times (1 - 0.045)$$

$$= 31690 \times 0.955$$

$$= \$ 30263.95$$

(3)

Deal review:			
MSRP/List Price.	22645	Gas fee	30
Discount	0	Lien Payout	0
Purchased price	\$22645	Delivery price	26460.12
Freight.	459	MFG Rebate	0
Tire/Air tax	100	Down payment	3000
Gastax	65	Finance Fee.	45
Administration fee	55	Amount financed.	23505.12
Trade in Allowance	0		
Taxable total	\$23324	Interest Rate	0.039/2
Taxes	303.72	Loan Term	60 month
Licence plate fee	74	Monthly payment	\$431.83

$$\text{MSRP} = 19995 + 1000 + 1200 + 450 = \$ 22645$$

(4) Advantages.

- Cheaper
- Less depreciated.

Disadvantages.

- Older
- Don't know how repair work done.

$$(5) \quad V = P(1-i)^n$$

$$V = 30450(1-0.2)^2$$

$$V = 30450 \times 0.8^2$$

$$V = \$19488$$

$$(6) \quad PV = 8790$$

$$n = 48$$

$$i = \frac{4.9}{12 \times 100}$$

$$R = ?$$

$$PV = R \left[\frac{1 - (1+i)^{-n}}{i} \right]$$

$$8790 \left(\frac{0.049}{12} \right) = R \left[\frac{1 - \left(\frac{0.049}{12} + 1 \right)^{-48}}{\frac{0.049}{12}} \right]$$

$$R = \$202.03$$

$$(7) \quad (a) \quad 100 \text{ km} \rightarrow 5.6 \text{ L.}$$

$$50500 \text{ km?}$$

$$\text{fuel consumption} = \frac{50500}{100} \times 5.6 = 2828 \text{ L.}$$

$$\text{Cost} = 2828 \times 0.78 = \$2205.84$$

$$(b) \quad 100 \text{ km} \rightarrow 6.7 \text{ L.}$$

$$21485 \text{ km?}$$

$$\text{fuel needed} = \frac{6.7}{100} \times 21485 = 1439.495 \text{ L.}$$

$$\text{cost for fuel} = 1439.495 \times 0.924 = \$1330.09$$

$$(8) \quad \text{Gas} = \frac{6.9}{100} = 0.069 \text{ l per km.}$$

$$\text{fuel consumption} = 0.069 \times 27000 \\ = 1863 \text{ l.}$$

$$1863 \times 0.91 = \$1695.33$$

$$\text{for lube oil and filter} = \frac{27000}{5000} \times \$31.95 = \$159.75$$

$\underbrace{\hspace{1cm}}_{\approx 5}$

$$\left. \begin{array}{l} \text{time rotation \& } \\ \text{break inspection} \end{array} \right\} = \frac{27000}{10000} \times \$45.50 = \$91.$$

$\underbrace{\hspace{1cm}}_{\approx 2}$

$$\begin{array}{l} \text{Wheel allignment} \\ \text{inspection} \end{array} = \frac{27000}{25000} \times 72.99$$

$\underbrace{\hspace{1cm}}_{\approx 1}$

$$= \$72.99.$$

$$\begin{array}{l} \text{for replacing 4 tyres} \\ \end{array} = 4 \times 105 + 4 \times 20 \\ = \$500$$

$$\begin{array}{l} \text{total for one year} \\ \end{array} = 1695.33 + 159.75 + 91 + 72.99 + 500 \\ = \$2519.07$$

$$\begin{array}{l} \text{Total for the month} \\ \end{array} = \frac{2519.07}{12.} \\ = \$209.92$$

key Question # 10

$$(1) \text{ for } \$1 \rightarrow 1.15$$

$$\begin{aligned} \text{for } \$19825 &\rightarrow 1.15 \times 19825 \\ &= \$22798 \end{aligned}$$

$$(2) \text{ Listed price} = \$25500$$

$$\begin{aligned} \text{with taxable} &= 25500 + 1275 + 500 \\ \text{amount} & \end{aligned}$$

$$= \$27275$$

Assuming the tax is 15%.

$$\begin{aligned} \text{total cost} &= 27275 \times 1.15 \\ &= \$31366.25 \end{aligned}$$

$$\begin{aligned} (3) \text{ Price of car after} &= 17500 \times 0.85 \\ \text{discount} & \\ &= \$14875 \end{aligned}$$

As \$14875 is less than the amount they have
parents can buy it

(4)

$$\text{Amount before taxable} = 32800 - 1200 + 800 + 1250 + 1450$$

$$= \$35100$$

$$\text{taxable amount} = 35100 + 625 + 100 + 75 + 45 - 0$$

$$= \$35945$$

$$\text{taxes} = 0.13 \times 35945$$

$$= \$4672.85$$

$$\text{Delivery price} = 35945 + 4672.85 + 74 + 45$$

$$= \$40736.85$$

$$\text{Amount financed} = 40736.85 - 6 - 2500 + 54$$

$$= \$38290.85$$

$$R = \frac{PV \cdot i}{[1 - (1+i)^{-n}]} = \frac{38290.85 \times 0.001583}{1 - 1.001583^{-60}}$$

$$= \$669.47$$

Deal Review

MSRP	36300
discount	1200
Purchased price.	35100
Freight	625
Tire./Air	100
Gas tax	75
Admission	45
Taxable total	35945
tax	4672.85
Liscence plate.	74

Gas fee	45
Lien payout	0
Delivery price	40736.85
MFG Rebate.	0
Down payment	2500
Finance fee.	54
Amount finance	38290.85
Int. rate	1.9%
Loan term	5 years
Monthly payment	\$669.47

(5) Advantages.

It's new

No repairs to be done

Can use more time without any errors

Disadvantages

Expensive

High depreciate

less experience.

(6) $P = 21300$

$r = 18\%$

$t = 4$

$$\text{Resale Value} = P \left(1 - \frac{r}{100} \right)^n$$

$$= 21300 \left(1 - \frac{18}{100} \right)^4$$

$$= 21300 (0.82)^4$$

$$= \underline{\underline{\$ 9630.20}}$$

(1)

Service	frequency km	Cost Apprx	No of Replacement		Total cost	
			A	B	A	B
Luberoil	5000	29.99	2	11	59.98	329.85
tire break	10000	34.50	1	5	34.5	172.5
Wheel alignment	25000	64.99	0	2	0	129.98
tune up	50 000	250	0	1	0	250
Cooling System	50 000	84.95	0	1	0	84.95
Brakes	50 000	355	0	1	0	355
					<u>\$ 94.48</u>	<u>\$ 1322.32</u>

$$\text{fuel cost of Car A} = 13500 \times \frac{8.1}{100} \times 0.87 = 957.345$$

$$\begin{aligned} \text{total cost} &= 957.35 + 94.48 \\ &= \underline{\underline{\$ 1045.826}} \end{aligned}$$

$$\text{fuel cost of Car B} = 55625 \times \frac{8.1}{100} \times 0.87$$

$$= \$ 3919.89375$$

$$\begin{aligned} \text{total cost} &= 3919.89 + 1332.32 \\ &= \$ 5242.21 \end{aligned}$$

$$(7) \quad PV = 35450$$

$$r = -23$$

$$n = 3$$

$$\text{Future Value} = PV \left(1 + \frac{r}{100} \right)^n$$

$$= 35450 \left(1 - \frac{23}{100} \right)^3$$

$$= \$16184.09$$

This is not realistic as the car value is less than 25000

$$(8) \quad (a) \text{ for } 1 \text{ km} \rightarrow \frac{7.1}{100} \text{ l.}$$

$$\text{for } 22000 \text{ km} \rightarrow 22000 \times \frac{7.1}{100} = 1562 \text{ l.}$$

$$\Delta \text{ l costs} \rightarrow \$0.88$$

$$\text{for whole journey} \rightarrow 0.88 \times 1562.$$

$$= \$1374.56$$

$$(b) \quad \text{for } 1 \text{ km} = \frac{5.8}{100} \text{ l.}$$

$$\text{for } 49900 \text{ km} = \frac{5.8 \times 49900}{100} = 2894.2 \text{ l.}$$

$$\text{cost for whole journey} = 2894.2 \times 97.3 \text{ p}$$

$$= 281605.66 \text{ p}$$

$$= \$2816.06$$