CHAPTER 3

Consumer Mathematics: Savings and Investments, Credit and Debt

What will you learn?

3.1 Savings and Investments

3.2 Credit and Debt Management

Why do you learn this chapter?

- Knowledge of savings and investments can help us to manage our finances.
- The concept of savings and investments is used in banking, stocks, real estate, business, finance, accounting and so on.

"Many a little makes a mickle". The above proverb means it is a good habit to save money for the future. Saving habits that have been practised since childhood can help a person cope with any emergency. Investments made by an individual must be in a timely manner in accordance with the current market.

The barter system was practised before the use of money in the economy and was the earliest form of business in the world.

History of money development began with the evolution of the human civilisation itself, which was around 2 000 BC.

http://bukutekskssm.my/Mathematics/F3/ExploringEraChapter3.pdf

WORD BANK

• liquidity	• *kecairan*
• interest	• *faedah*
• debt	• *hutang*
• interest rate	• *kadar faedah*
• credit	• *kredit*
• investment	• *pelaburan*
• loan	• *pinjaman*
• personal loan	• *pinjaman peribadi*
• return	• *pulangan*
• savings	• *simpanan*

3.1 Savings and Investments

✎ What are savings and investments?

Savings refer to excess money deposited in the safe, money box or drawer. Extra money can also be deposited at a bank that will provide returns based on interest rates and savings periods. There are some common ways of saving in the bank.
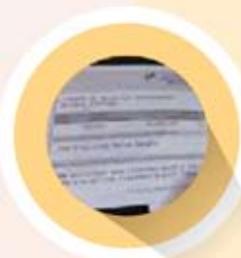
Savings Account

- The savings account holder can save any amount according to his ability.
- The account holder receives the interest based on the total amount and duration of savings.
- Interest rates are lower compared to fixed deposit accounts.
- The account holder can withdraw the savings at any time.
- The savings can be withdrawn by using a debit card via an automatic teller machine (ATM).

BULLETIN 📣

Credit counselling and credit agencies encourage each individual to save 10% of their monthly income.

Fixed Deposit Account

- A sum of money is saved for a certain period of time such as 3 months, 9 months or 1 year tenure.
- Account holders will be offered more competitive interest rates compared to savings accounts.
- Savings cannot be withdrawn before the maturity date.
- If the money is withdrawn before maturity, the actual interest rate that should be received, will be reduced and will be cancelled at a certain time.
- A savings certificate will be issued to the account holder.

Current Account

- Savings in a current account can be used for personal or business purposes.
- The account holder may make payment to another party by cheque.
- Savings in the account will not be paid interest and is subjected to service charges. However, there are certain banks that pay interest to current account holders.
- The current account applicant must submit a referral who is an existing current account holder at the same bank to open the account.
- In addition to cheques, normal withdrawals are usually allowed via debit cards and other channels such as Internet banking, telephone banking and so on.
- The account holder can enjoy an overdraft facility, that is, withdrawing money beyond the balance of the deposit, but with interest charges.

Investment is an alternative step for future returns in the form of current income and capital gains. Types of investments are as follows:

Shares

A company will issue shares for the purpose of raising capital. An individual who purchases shares from a company is the owner of the company under certain conditions. The shareholders will receive returns in the form of dividends and capital gains.

TIPS

Luxury Stocks (Blue Chip Stocks) are stocks of large companies with track records of excellent business such as Maybank, TNB and Petronas.

Unit Trust

Trust fund is controlled by a unit trust company that is managed by a qualified professional manager in the field of investment. Those who have no knowledge of the purchase of shares can get help from the unit trust companies to manage their money. Unit trust companies collect money from investors and the money is invested in various potential companies with the aim of providing returns that benefit investors.

BULLETIN

♦ Investment returns comprise current income and capital gains.
♦ Return on current income – rents, dividends, bonus shares.
♦ Capital gains – additional or increased investment value from its original amount. For example, stock prices rose from RM2.00 to RM2.20, thus the addition of RM0.20 was an increase in investment value.

Real Estate

Investments on immovable assets such as residential houses, shops, land and others are investments in real estate. Investors should consider various aspects before investing.

Factors to be considered in real estate investment are economic situations, income-generating capabilities that is rent, location and property prospects in the future. Individuals who invest in real estate will receive an investment return in the form of rent and capital gains.

QUIZ

Is the purchase of life insurance and health insurance considered as an investment or savings?

Brainstorming 1

In groups

Aim: To identify types of savings and investments.

Steps:

1. Get into groups of five or six students. Each group should state the types of savings and investments according to the statements given and explain the characteristics of the savings and investments specified.

2. The information collected should be presented in the form of reports as shown below.

	Type of savings	Type of investment	Description
1. Encik Rizal saves a total of RM300 in the bank.	Savings		Savings account – the amount of money saved is small and can be withdrawn at any time.
2. Cik Zeti is a dealer who keeps a sum of money in the bank with the intention of issuing a cheque to pay the creditor.			
3. Mrs Rani uses the money received from her father to buy a shoplot.			
4. Puan Faridah saved a sum of RM20 000 in the bank to finance the education of her children in the future.			
5. Mr Lee bought 1 000 units of unit trusts.			
6. Ms Sharon bought 4 000 units of Bank Orkid Berhad shares worth RM1.00 per share on the Kuala Lumpur Stock Exchange.			

Discussion:

State the advantages and disadvantages of each type of savings and investments.

From Brainstorming 1, it is found that savings and investments are different.

MIND TEST 3.1a

1. What is the purpose of an individual's savings?
2. Your father has RM5 000 and has not used it for a long time. What is your advice to him? Explain your answer.
3. Besides merchants, why aren't most people interested in opening a current account?

🔵 **What do you understand about the benefits of savings?**

Interest for savings are rewards paid by financial institutions such as banks to depositors. The interests can be divided into two types, namely **simple interest** and **compound interest**.

🟦 Simple interest

Simple interest is a reward given to the depositor at a certain rate on the deposit amount (principal) for a certain period of time (in years).

Example 1

Encik Zainal deposited RM4 000 at Bank Bunga Raya with an interest rate of 2% per annum. How much is the interest earned by Encik Zainal after 1 year?

Solution:

The principal deposited by Encik Zainal is RM4 000. So, 2% of RM4 000 is

$$RM4\,000 \times \frac{2}{100} = RM80$$

After 1 year, the interest earned by Encik Zainal is

$$\text{Interest} = RM80 \times 1$$
$$= RM80$$

TIPS 💡

Rate is given in percentage form. Thus, we must divide the rate by a hundred. If the time is given in months, do not forget to change to year by dividing by 12 months.

The simple interest can be calculated using the following formula:

$$I = Prt$$

I is the interest, P is the principal, r is the rate and t is the time in years.

Example 2

Encik Badrul deposits RM5 000 in a bank with an interest rate of 3% per annum for a period of 2 years. Calculate the total interest that Encik Badrul will receive for the 2-year period.

Solution:

$$P = 5\,000 \qquad r = 3\% = \frac{3}{100} = 0.03 \qquad t = 2$$

Thus, interest $I = Prt$
$$= RM5\,000 \times \frac{3}{100} \times 2$$
$$= RM300$$

Example 3

Ms Wong deposits RM10 000 in Bank Murni with an interest rate of 4% per annum. Calculate the amount of interest Ms Wong will receive after 6 months.

Solution:

$I = Prt$

$= \text{RM10 000} \times \dfrac{4}{100} \times \dfrac{6}{12}$

$= \text{RM200}$

What is the impact on the simple interest as a result of changing the savings period?

The changes in savings period in a bank give different returns.

Example 4

Encik Nazrin deposits RM8 000 in Bank Desa with an interest rate of 3% per annum. Calculate the total savings of Encik Nazrin after he has saved for

(a) 2 years   (b) 3 years

Solution:

The formula for calculating the interest, $I = Prt$

Principal   = RM8 000
Interest rate = 3%

(a) 2 years	(b) 3 years
Interest $= \text{RM8 000} \times \dfrac{3}{100} \times 2 = \text{RM480}$	Interest $= \text{RM8 000} \times \dfrac{3}{100} \times 3 = \text{RM720}$
Total savings at the end of the second year = RM8 000 + RM480 = RM8 480	Total savings at the end of the third year = RM8 000 + RM720 = RM8 720

Based on the example above, it is found that the longer the savings period (at the bank), the higher the amount of interest earned. Therefore, the final amount of savings also increases.

What is the impact if the given interest rates differ for the same principal?

Dad, what is the impact on the total annual returns if interest rates are different for the same principal?

The total annual returns received will surely be different.

Example 5

Mrs Vanmathy deposits a sum of RM5 000 in a bank. What is the amount of Mrs Vanmathy's savings after 1 year if the interest rate given is
(a) 5% per annum   (b) 6% per annum

What is the difference between the amounts of interest earned by Mrs Vanmathy in the above situations?

QUIZ

Why is a fixed deposit account given a higher interest rate than a savings account?

Solution:

Total savings	Interest rate	Savings period (years)	Total interest	Total savings after 1 year
RM5 000	5%	1	$RM5\ 000 \times \dfrac{5}{100} \times 1$ $= RM250$	$RM5\ 000 + RM250$ $= RM5\ 250$
RM5 000	6%	1	$RM5\ 000 \times \dfrac{6}{100} \times 1$ $= RM300$	$RM5\ 000 + RM300$ $= RM5\ 300$

The difference between the total interests received is RM300 – RM250 = RM50.

Based on Example 5, for the same principal, when the interest rates increase, the total savings at the end of the year also increases.

TIPS

↑ The higher the interest rate ↑ The higher the return

The lower the interest rate ↓ The lower the return

Compound interest

Compound interest is interest that is calculated based on the original principal and also the accumulated interest from the previous period of savings.

Compound interest is different from simple interest in terms of the amount of savings to be used for interest calculation.

For compound interest, the frequency of compounding on the principal can be different. For example, compounded once a year or once every 3 months and so on.

Referring to Example 4(a), if Encik Nazrin is given compound interest which is compounded once a year, what is his savings at the end of the second year?

In the first year, the amount of interest received is

$$RM8\ 000 \times \frac{3}{100} = RM240.$$

Thus, the amount of savings at the end of the first year is RM8 240.

For the second year, the amount of savings used for interest calculation is RM8 240 (principal + first year interest).
Thus, interest at the end of the second year is

$$RM8\ 240 \times \frac{3}{100} = RM247.20.$$

Scan the QR Code or visit http://bukutekskssm.my/Mathematics/F3/Chapter3Compund.pdf for more information about compound interest.

Therefore, the amount of Encik Nazrin's savings at the end of the second year is

$$RM8\ 240 + RM247.20 = RM8\ 487.20.$$

CHAPTER 3

In general, the formula for calculating compound interest is:

$$MV = P\left(1 + \frac{r}{n}\right)^{nt}$$

MV = matured value
P = principal
r = yearly interest rate

n = number of periods the interest is compounded per year
t = term in years

Based on Encik Nazrin's example, it was found that:

$$P = 8\,000, \quad r = 0.03, \quad n = 1, \quad t = 2.$$

Thus, the amount of Encik Nazrin's savings at the end of the second year is

$$MV = P\left(1 + \frac{r}{n}\right)^{nt}$$

$$= RM8\,000\left(1 + \frac{0.03}{1}\right)^{(1)(2)}$$

$$= RM8\,000\,(1.0609)$$

$$= RM8\,487.20$$

Example/ 6

At the beginning of a year, Mrs Liew Foong saves RM15 000 in her savings account with a rate of 4% per annum and compounded every 6 months. What is Mrs Liew Foong's total savings at the end of the third year?

Solution:

$$P = 15\,000 \quad r = \frac{4}{100} = 0.04 \quad n = 2 \quad t = 3$$

$$MV = P\left(1 + \frac{r}{n}\right)^{nt}$$

$$= 15\,000\left(1 + \frac{0.04}{2}\right)^{(2)(3)}$$

$$= 15\,000\,(1.1262)$$

$$= RM16\,892.44$$

QUIZ

What is the impact on the total cumulative returns, if the compounding rate increases in a year?

Example/ 7

A bank offers a 5% interest rate per annum for savings in a fixed deposit account. If Puan Wahidah saves RM10 000 at the beginning of the year, how much money is in her fixed deposit account at the end of the year if the interest is compounded
(a) once every 3 months?   (b) once a month?

Solution:

$$P = 10\,000 \quad r = \frac{5}{100} = 0.05 \quad t = 1$$

$$MV = P\left(1 + \frac{r}{n}\right)^{nt}$$

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Inflation also affects the value of the currency. If the inflation rate increases, the purchasing power of RM1 will reduce.

(a) $n = 4$	(b) $n = 12$
Thus,	Thus,
$MV = 10\,000\left(1 + \dfrac{0.05}{4}\right)^{(4)(1)}$	$MV = 10\,000\left(1 + \dfrac{0.05}{12}\right)^{(12)(1)}$
$= \text{RM}10\,509.45$	$= \text{RM}10\,511.62$

From Example 7, it was found that when the compounding frequency increases, the future value of savings also increases.

Example 8

Mr Charles deposited RM6 000 in a fixed deposit account at Bank Berjaya for 2 years with an interest rate of 6% per annum. What is the difference between the amount of interest Mr Charles earned if he was given compound interest (compounded once every 4 months) compared to simple interest?

Solution:

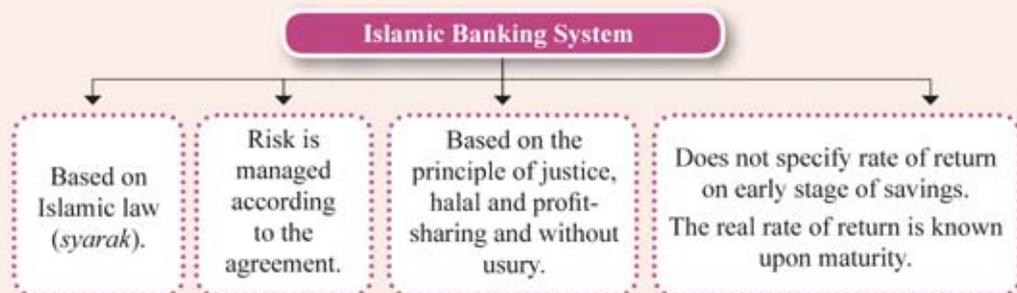| Simple interest	Compound interest
Interest, $I = Prt$ $= \text{RM}6\,000 \times \dfrac{6}{100} \times 2$ $= \text{RM}720$	$MV = P\left(1 + \dfrac{r}{n}\right)^{nt}$ $= 6\,000\left(1 + \dfrac{0.06}{3}\right)^{(3)(2)}$ $= \text{RM}6\,756.97$ Total accumulated interest $\text{RM}6\,756.97 - \text{RM}6\,000 = \text{RM}756.97$

Thus, the difference in the amount between simple interest and compound interest (compounded once every 4 months) is

RM756.97 – RM720 = RM36.97

Based on Example 8, it is clear that savings with compound interest give higher returns than savings with simple interest.

Islamic Banking

Malaysia practises a dual banking system. They are conventional banking system and Islamic banking system.

Islamic Banking System

- Based on Islamic law (*syarak*).
- Risk is managed according to the agreement.
- Based on the principle of justice, halal and profit-sharing and without usury.
- Does not specify rate of return on early stage of savings. The real rate of return is known upon maturity.

Example/9

Encik Osman saved RM20 000 in a savings account in an Islamic bank, according to the principle of wadiah for 1 year. By the end of the year, he received a sum of RM20 500 as a return from the savings. An additional RM500 is a hibah (gift) from the bank. Calculate the percentage of hibah obtained by Encik Osman.

Solution:

$$\text{Percentage of hibah} = \frac{RM500}{RM20\,000} \times 100\% = 2.5\%$$

2.5% is only a reference for savings and is not fixed.

MIND TEST 3.1b

1. Puan Nathania deposited RM500 into her savings account that gives an interest rate of 4% per annum and compounded quarterly. How much is Puan Nathania's savings at the end of the fifth year?

2. Mr Chong deposited RM1 000 into his savings account that gives an interest rate of 5% per annum and compounded once every half year. How much is Mr Chong's savings at the end of the third year?

3. Puan Aminah deposited RM100 into her savings account that gives an interest rate of 3% per annum and compounded monthly. How much is Puan Aminah's savings at the end of the second year?

✐ What do you understand by return on investment (ROI)?

Return on investment refers to the return value of each ringgit invested by the investor. In other words, return on investment is also a ratio of profit or loss derived from an investment.

In general, investors prefer to assess the return on investment in percentage. Return on investment will reflect the profit or loss achieved by individual investors in investment.

An investment is considered profitable (wise investment) when the present value of the investment and the amount of return received is more than the value of the original investment.

Similarly, when the amount of return and the present value of the return is less than the value of the original investment, then the investment is unprofitable.

The formula for calculating return on investment is

$$\text{Return on investment} = \frac{\text{Total return}}{\text{Value of initial investment}} \times 100\%$$

In addition, investors also have an expected rate of return from an investment. For example, an investor expects a rate of return of 10% on their investment. However, the real rate of return to be received may not be as expected.

Investment instruments consist of the unit trust, shares, real estate and so on. Each of these investment instruments will bring returns.
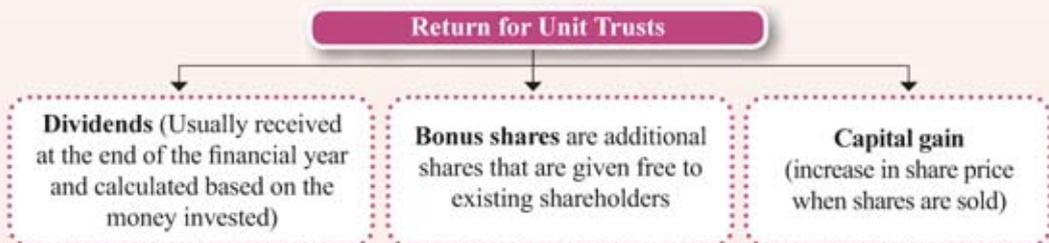
Unit Trust

Unit trust is a good investment alternative for medium term investment (3 to 5 years) and long term (over 5 years).

Investments in unit trusts are low risk as they are managed by professional fund managers regulated by the securities commission and also monitored by Bank Negara Malaysia.

Investments in unit trusts allow investors to diversify their investments with a small capital.

Below is the return for unit trusts.

Return for Unit Trusts

| **Dividends** (Usually received at the end of the financial year and calculated based on the money invested) | **Bonus shares** are additional shares that are given free to existing shareholders | **Capital gain** (increase in share price when shares are sold) |

Example 10

On 1 January 2018, Puan Siti invested 3 000 units valued at RM2.00 per unit in Amanah Saham Bumiputera (ASB). For the financial year ending 31 December 2018, Amanah Saham Bumiputera paid a dividend of 5%. On 1 January 2019, Puan Siti sold all the shares she owned at RM2.20 per unit. What is the return on investment for Puan Siti?

Solution:

Steps for calculating dividend

Initial capital $= 3\,000 \times$ RM2.00
$\qquad\qquad\quad =$ RM6 000

Dividend $= \dfrac{5}{100} \times (3\,000 \text{ units} \times$ RM2.00$)$
$\qquad\quad =$ RM300

Increase in share price $=$ RM2.20 $-$ RM2.00 $=$ RM0.20
Capital gain $=$ RM0.20 $\times 3\,000$ units
$\qquad\qquad\; =$ RM600
Total return $=$ RM300 $+$ RM600 $=$ RM900

Return on investment $= \dfrac{\text{RM900}}{\text{RM6 000}} \times 100\% = 15\%$

The return on investment benefits Puan Siti as she receives two types of returns namely dividend and capital gain from an increase in share value from RM2.00 to RM2.20.

What do you understand about return on investment for real estate?

Investment in real estate is one of the investments that bring returns in the form of rent and capital gains. When a property is rented, the owner (investor) of the property will receive return in the form of rent. If the property is sold, the owner (investor) will receive capital gain or capital loss.

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                          Real Estate
        ┌──────────────────────┼──────────────────────┐
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Land	House	Commercial Lot
Returns	*Returns*	*Returns*
Rental and capital gain	Rental and capital gain	Rental and capital gain

Example 11

Encik Yusuf bought a shoplot at a price of RM600 000 on 1 January 2017 in Bangi. He paid 10% of the shoplot's purchase price of RM60 000. The shoplot was rented from 1 January 2017. On 31 December 2026, he sold the shoplot for RM1 300 000. The loan amount still owed to the bank was RM486 000. Meanwhile, the amount that has been amortised to the bank was RM450 000. Other charges involved in the sale and purchase transactions are as follows:

Legal cost	RM15 000
Stamp duty (during sale and purchase)	RM15 000
Agent's commission	RM18 000

The total rent collected throughout the possession of the shoplot is RM200 000. Calculate the return on investment obtained by Encik Yusuf.

Solution:

Total rent = RM200 000

Capital gain = RM1 300 000 – RM486 000 – RM60 000 – RM15 000 – RM15 000
            – RM18 000 – RM450 000
          = RM256 000

Total return = RM200 000 + RM256 000
            = RM456 000

Return on investment $= \dfrac{RM456\ 000}{RM600\ 000} \times 100\%$

$\qquad\qquad = 76\%$

Example 12

Encik Hussein bought a house on 1 January 2015 in Cheras at RM300 000 and cleared 10% down payment of RM30 000. He expects a return of 30% over 20 years.

Encik Hussein sold the house at a price of RM600 000 after having owned the house for 20 years. The loan amount amortised to the bank was RM475 000. During that period, he managed to earn a rent of RM60 000. Other expenses incurred are as follows:

Stamp duty (during sale and purchase)	RM4 000
Agent's commission	RM2 000
Legal cost during sale and purchase	RM4 000

What is the return on investment for Encik Hussein for 20 years? Did he achieve his expectation to get a return of 30%?

Solution:

Return on investment
= Rent + Capital gain
= RM60 000 + (RM600 000 – RM30 000 – RM475 000 – RM4 000 – RM2 000 – RM4 000)
= RM60 000 + RM85 000
= RM145 000

Return on investment $= \dfrac{RM145\ 000}{RM300\ 000} \times 100\%$

$\qquad\qquad = 48.33\%$ ◄ Encik Hussein managed to obtain a rate of return of 48.33%. This rate exceeds the expected rate of return of 30%.

In real estate investment there are factors that affect the return on investment. The factors that affect return on investment are as follows:

The economic situation
- The country's good economic situation will increase real estate prices because the demand for real estate will increase.

Location
- The properties that are strategically located near a vastly developed city centre have higher prices compared to properties in rural areas.

Factors that affect the return on investment on real estate

Political situation
- A stable political situation will increase demand for real estate.
- This will indirectly increase real estate prices.
- Political instability will reduce demand for real estate and indirectly cause the fall of real estate prices.

MIND TEST 3.1c

1. What is the meaning of return on investment or ROI?

2.

  📷 On 1 January 2019, Mr Moses bought a homestay at a price of RM250 000.
  📷 The daily rental rate is RM100.
  📷 On average, the homestay will be occupied for 20 days in a month.
    (a) Calculate the monthly rentals.
    (b) Calculate the return if the homestay is sold for RM480 000 at the end of the year.

3. On 1 January 2018, Rahim invested in 4 000 units of Amanah Saham Bumiputera (ASB) shares valued at RM1 per unit. For the financial year ending 31 December 2018, ASB paid a dividend of 8%.

   How much is the dividend received by Rahim for that year?

�e **What factors should be considered before making an investment?**

LEARNING STANDARD

Compare and contrast potential risks, return and liquidity of various types of savings and investments.

Three factors that should be taken into account by an investor prior to making an investment are as follows:

Potential investment risk	The uncertainty that losses may be incurred from the investments made.
The level of return	Profit enjoyed by investors from investments.
Liquidity aspect	Relating to how soon the investment or savings could be cashed out.

The table below shows the comparison of various types of savings and investments by individuals in terms of risk levels, return levels and liquidity levels.

Type of investment	Risk level	Return level	Liquidity level
Saving	Risk free	Low	High
Fixed deposits	Risk free	Low	High
Company shares	High	High	Moderate
Real estate	Moderate	High	Low
Unit trust	Low	Moderate	High

TIPS

One way to reduce investment risk is to diversify one's investment portfolio. This helps to offset risks from each investment and thus further reduce the risk in the investment portfolio.

BULLETIN

Portfolio
Various levels of investment type.

MIND TEST 3.1d

1. Explain the relationship between risk and return on investment.

2. The potential risk of saving in a bank is zero as compared to investment. Explain this statement.

3. Why do unit trusts have a high liquidity level?

4. Real estate has a moderate potential risk. Explain.

5.

• RM150 per day

Encik Osman sets up a homestay on the lot of land purchased at RM250 000. The overall cost of setting up this homestay is RM500 000.

(a) What type of investment was made by Encik Osman?

(b) State the potential risks, return and liquidity of the investment made by Encik Osman.

(c) In your opinion, was the investment made by Encik Osman a wise move? Justify.

🔵 What do you understand about cost averaging strategy?

Cost averaging strategy is a technique commonly practised by investors who invest in shares with a fixed amount for a certain period such as monthly, quarterly or yearly regardless of the stock market conditions.

Cost averaging strategies can help investors to buy shares with a lower average cost and the total number of shares owned will be higher within the same investment period, as opposed to buying them in a lump sum or with a single purchase.

For example, Puan Hasniza has RM12 000 and buys shares in a lump sum from Sempurna Company at RM2.00 per share unit. Hence, Puan Hasniza will only have 6 000 units of shares (6 000 units of shares × RM2.00 = RM12 000). However the situation will be different if Puan Hasniza decides to buy shares based on cost averaging strategy.

The table below shows Puan Hasniza's investment chart in a year based on cost averaging strategy for buying shares on a monthly basis.

Month	Investment amount (RM)	Unit price (RM)	Number of unit $=\dfrac{\text{Investment amount}}{\text{Unit price}}$
January	1 000	2.00	500
February	1 000	1.80	555
March	1 000	1.80	555
April	1 000	1.70	588
May	1 000	1.70	588
June	1 000	1.60	625
July	1 000	1.60	625
August	1 000	1.50	666
September	1 000	1.60	625
October	1 000	2.20	454
November	1 000	2.30	434
December	1 000	1.90	526
	12 000	1.78 (average cost per share unit)	6 741 (number of units owned)

With the cost averaging strategy given above, Puan Hasniza earned 6 741 units by investing RM12 000.

Cost averaging strategy

$$\text{Average Cost} = \frac{\text{Investment amount}}{\text{Number of share units owned}}$$

$$\text{Average cost per share unit} = \frac{\text{RM12 000}}{6\ 741} = \text{RM1.78}$$

TIPS 💡

When you use cost averaging strategy to invest in shares, the cost of the shares you have bought will not be the highest price nor will it be the lowest price.

Example 13

Below are two investors who plan to invest in shares using different strategies.

I would like to invest RM20 000 to buy shares and would accumulate the shares in the designated months by spending the same amount of money.

I want to invest a lump sum of RM20 000 to buy Pelita Company shares at RM2.00 a unit.

Mrs Esther Wong   Puan Linda

Shares acquired by Mrs Esther Wong in the designated months:

Month	January	March	May	August	December
Shares price per unit (RM)	2.00	1.80	1.60	2.10	2.00

(a) Calculate the average cost per unit and the number of shares owned by Puan Linda and Mrs Esther Wong.

(b) Who is a wise investor? Justify your answer.

Solution:

(a) Puan Linda

$$\text{Total shares} = \frac{\text{RM20 000}}{\text{RM2.00}} = 10\ 000 \text{ share units}$$

$$\text{Average cost per share} = \frac{\text{RM20 000}}{10\ 000 \text{ share units}}$$

$$= \text{RM2.00}$$

Mrs Esther Wong

Month	Total investment	Price per unit (RM)	Number of share unit
January	4 000	2.00	2 000 units
March	4 000	1.80	2 222 units
May	4 000	1.60	2 500 units
August	4 000	2.10	1 904 units
December	4 000	2.00	2 000 units
	20 000		10 626 share units

Total shares = 10 626 share units

$$\text{Average cost per share} = \frac{\text{RM20 000}}{10\ 626 \text{ units}}$$

$$= \text{RM1.88}$$

(b) Mrs Esther Wong is a wise investor for practising the cost averaging strategy that helped her to accumulate more shares with the same amount of money.

Able to take advantage of the unit price changes
- When the stock price is low, more units of shares can be purchased.
- Indirectly helps investors to have more shares in the long term.

The average cost of a share unit bought by an investor can be reduced in the long term.

Advantage of the cost averaging strategy for investors

Not influenced by emotions
- Invest consistently on a periodic basis the same amount of money without being influenced by emotions caused by share price fluctuation.

Lower the risk of loss
- Total investment is carried out on a regular and consistent manner, which helps investors to purchase based on current situation and avoid losses associated with lump sum investment.

MIND TEST 3.1e

1. What do you understand about the cost averaging strategy in purchasing shares?
2. Below are two investors who invested using different strategies.

Investor 1 → Mr Derick invested a lump sum of RM24 000 to purchase Wawasan shares at RM2.00 per share unit.

Investor 2 → Encik Sulaiman has RM24 000 and invested consistently on a periodic basis RM2 000 each month to purchase Wawasan shares.

Month	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Share price per unit (RM)	2.00	1.80	1.70	1.60	2.10	1.50	2.20	2.00	2.00	1.60	1.70	1.80

The table above shows the share price bought by Encik Sulaiman on a monthly basis.
(a) Who is a wise investor? Justify your answer.
(b) Calculate the average cost per share unit and the number of shares owned by Encik Sulaiman.
(c) State the advantages of using cost averaging strategy in purchasing shares.

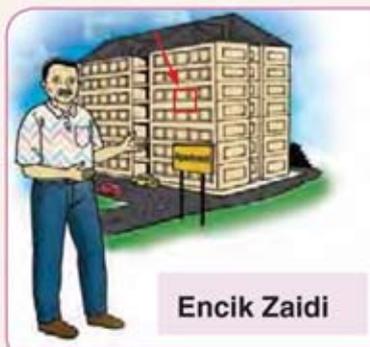## How do you solve problems involving savings and investments?

Example 14

Encik Zaidi, Mr Leong and Mr Navin had retired from their jobs and each received RM400 000 as gratuity from their company. They use different investment methods to invest.

Who is a wise investor?

Encik Zaidi

Encik Zaidi bought a medium-cost apartment in Kajang worth RM150 000 and receives a rental of RM800 per month. The balance is kept in a fixed deposit account with an interest rate of 4% per annum.

Mr Leong

Mr Leong invested RM400 000 in Manis Company shares at RM2.00 per unit. The company declared a dividend of 8% for that year.

Mr Navin

Mr Navin deposited RM200 000 into a savings account with an interest rate of 1% per annum. The balance RM200 000 is kept in a fixed deposit account at 4% interest rate per annum.

Solution:

Encik Zaidi

Level of risk	The level of risk for property (apartments) and fixed deposits is low.		
Return on investment	Receives a return on investment in the form of rent and interest.		
	Rental	**Savings interest**	**Return on investment (ROI)**
	RM800 × 12 = RM9 600	$\frac{4}{100}$ × RM250 000 = RM10 000	ROI = $\frac{RM19\ 600}{RM400\ 000}$ × 100% = 4.9%
Liquidity	Savings are easily converted to cash while property takes time to sell.		

Mr Leong

Level of risk	The level of risk in buying shares is high.
Return on investment	Receives **dividends** and bonuses depending on the **performance** of the company invested in. If he sells his shares, it is uncertain that he will be able to sell the shares at a higher price compared to the purchase price. This depends on the economic situation and performance of the company stock at that period. Dividend = 400 000 × $\frac{8}{100}$ = RM32 000 ROI = $\frac{RM32\ 000}{RM400\ 000}$ × 100% = 8%
Liquidity	Moderate.

Mr Navin

Level of risk	The level of risk for both savings and fixed account are low.		
Return on investment	Receives a return on investment in the form of interest only.		
	Savings interest	**Fixed deposit interest**	**Return on investment (ROI)**
	RM200 000 × $\frac{1}{100}$ = RM2 000	$\frac{4}{100}$ × RM200 000 = RM8 000	ROI = $\frac{RM10\ 000}{RM400\ 000}$ × 100% = 2.5%
Liquidity	Savings are easily turned into cash.		

- Mr Leong is a wise investor because his return on investment value is higher than Encik Zaidi and Mr Navin.
- In this example, Encik Zaidi, Mr Leong and Mr Navin each uses the same amount of capital, which is RM400 000. The effectiveness of their investments can be compared based on their returns for the year respectively.

CHAPTER 3

1. The following are two investors who invested their gratuity.

> Mr Rasamanie received RM600 000 as gratuity from his company. He bought a double storey shop in Bangi, Selangor and receives a monthly rental of RM3 500.
>
> Monthly rental
> RM3 500
>
> Encik Nik Izwan received RM600 000 as gratuity from his company. He saves RM150 000 in a fixed deposit account at a commercial bank with an interest rate of 4% per annum. He also bought share units worth RM150 000.
>
> At the same time, Encik Nik Izwan bought shares in Cepat Maju Company worth RM100 000. The balance of the gratuity is used to buy a medium-cost apartment in Ampang and he receives a monthly rental of RM1 200.
>
> Monthly rental
> RM1 200

(a) Explain the investment risk level of both individuals.

(b) Who is a wise investor? Justify your answer.

(c) What factors need to be considered before investing in real estate?

2. In 2015, Mr Wong bought a house at RM540 000. He paid 10% down payment and the balance was paid through a loan. After 20 years, Mr Wong decided to sell the house at RM900 000. The following are the expenses involved.

Monthly instalment amount paid	RM666 000
Stamp duty	RM15 000
Agent's commission	RM8 000
Other expenses	RM18 000

Calculate the return on investment for Mr Wong.

3.2 Credit and Debt Management

🔵 What do you understand about credit and debt?

The word credit has several meanings. In the financial world, **credit** means a contractual agreement between the supplier (for instance a bank or financial institution) and the consumer. The consumer can borrow money from the supplier for any use or purchase and agree to repay within a certain period. In short, credit is a postponement of payment facility provided by the supplier to the consumer.

For example, banks offer credit facilities to customers in the form of credit cards. If the customer or credit card owner uses the credit card in a transaction, the bank will pay the seller first and the customer will pay back the bank within a certain period of time.

Credit can also mean the amount of money that can be borrowed. For example, for credit card, if the credit card limit is RM10 000, then the card owner has the ability to buy goods or make transactions up to RM10 000 with the card.

Debt usually means an amount that has been borrowed but has not been settled. If a transaction is made using a credit card, the credit will be converted into debt.

Personal budget is the estimated income and expenditure of an individual for a given period. The practice of making personal budget is strongly encouraged so that an individual can

(a) plan spending prudently
(b) avoid overspending
(c) save

🔳 How do you manage credit and debt wisely?

- Credit card users need to settle the debt payment within the period stipulated by the bank to enjoy interest free period.

- Pay the outstanding balance listed on the credit card statement.

- The minimum amount paid by the credit card holder provides opportunity for the bank to charge interest on the balance and may also incur late payment charges.

- Pay within the cash discount period for payment of debts.

CHAPTER 3

Example 15

Encik Syed bought an air conditioner at RM3 200 on 15 July 2018. He lacked RM1 200 in cash but has a Bank Cemerlang credit card. He was aware that the shortage of cash could be paid at the end of the month when he received his salary.

(a) Which credit facility can be used by Encik Syed to overcome the shortage of money?

(b) State the advantages and disadvantages of the payment method you specified in answer (a).

Solution:

(a) Encik Syed can use the credit card facility.

(b) The use of credit cards is more convenient if Encik Syed repays his credit within the interest-free period to avoid any extra charges.

Brainstorming 2

In groups

Aim: The impact of using credit card in buying goods online.

Steps:

1. Get into groups of four or five.

2. Surf any website related to the topics of discussion for more information.

3. The information collected should be presented using an appropriate thinking map to the class.

4. The best thinking map will be displayed in the mathematics corner.

Discussion:
What is the impact of purchasing goods online?

From Brainstorming 2, it is found that purchasing goods online can cause consumers to spend extravagantly and get into debt. Thus, be prudent when buying goods online.

MIND TEST 3.2a

1. What does a personal loan mean?

2. Many people are bankrupt due to credit cards

   What are the ways to overcome the situation above?

3. Puan Zuraidah wants to buy a refrigerator at Hebat Electrical Shop but she lacks RM2 500 in cash. Hebat Electrical Shop provides instant loans for purchases with an interest rate of 4% per annum. Puan Zuraidah also has a credit card. Which credit facility should be used by Puan Zuraidah and state its advantages?

NICOL REFRIGERATOR
RM3 200
HEBAT ELECTRICAL SHOP

What do you understand about the advantages and disadvantages of credit cards?

The use of credit cards is increasingly common today. As a consumer it is important for us to realise and understand the advantages and disadvantages of using credit cards.

LEARNING STANDARD

Investigate and describe the advantages and disadvantages of credit card and ways to use it wisely.

Advantages of credit card	Disadvantages of credit card
• Credit cardholders can enjoy a reward system in the form of cash rebate or point redemption. • Does not require us to carry a lot of cash. • Easy and efficient payment method. • Convenience of buying goods and services online.	• Incur charges such as annual fees, finance charges (interest), cash advance interest charges and late payment charges. • Overspending. • Some stores do not accept credit payment.

However, not all individuals are eligible for a credit card. There are several conditions that an applicant must adhere to.

- 21 years old and above.

- Minimum income of RM24 000 per annum and meets other requirements set by the bank.

- Requires salary slip or supporting documents.

Credit card users must comply with the obligations as a credit card user when signing the credit card application form.

- Do not give credit card details to strangers.

- Remember the pin number and do not record the pin number on the back of the card.

- Check the transactions in the credit card statement received at the end of the month.

CHAPTER 3

What do you understand about the impact of minimum payment and late payment on credit card use?

The credit cardholder will receive a financial statement for the credit card monthly. In the statement, there are details such as credit limit, statement date, latest amount, minimum payment amount, type of charges and so on.

The cardholder should pay the statement balance immediately so that no financial charges are incurred. But banks provide flexibility by allowing users to pay in a given period, known as the interest free period. Usually this period is 20 days from the statement date.

To enjoy this privilege every month, the cardholder must pay the total balance of credit card statement or make a minimum payment in the interest free period. The minimum payment is usually 5% of the total balance of the credit card statement, or a minimum of RM50.

If there is still a balance of the latest amount upon expiry of the interest free period, a finance charge (or interest) will be imposed on the balance based on daily rate. Most banks charge an annual interest rate of between 15% and 18%.

TIPS

The credit cardholder must pay the full statement balance of the credit card to enjoy a 20-day interest free period from the statement date.

However, if you pay only part of it, you will lose the interest-free period.

In addition, if no payment is made within the interest free period, then the minimum late payment charge of RM10 or 1% of total outstanding balance as of the statement date will be charged.

Example 16

Encik Ahmad received his credit card statement for January 2019 from Bank Sentosa. The statement shows that Encik Ahmad has a current amount (outstanding balance) of RM5 200. It is assumed that Encik Ahmad did not use his credit card in February.

(a) What is the minimum payment to be paid?
(b) If he only makes a minimum payment for January and the statement date is 15 days from the expiry date of the interest free period, what is the balance shown in his February statement?
(c) If he missed his payment for January, what is the balance shown in his February statement?

Solution:

(a) Current amount = RM5 200

5% of the current amount $= \left(\dfrac{5}{100}\right) \times$ RM5 200 = RM260

This amount exceeds RM50, thus the minimum payment to be paid by Encik Ahmad is RM260.

(b) Outstanding balance = RM5 200 − RM260 = RM4 940
Period subject to financial charges = 15 days = (15 ÷ 365) year
Interest charged = RM4 940 × [(18 ÷ 100) × (15 ÷ 365)] = RM36.54
Current amount (Outstanding balance) in February = RM4 940 + RM36.54 = RM4 976.54

TIPS

We should use credit cards wisely.

(c) Outstanding balance = RM5 200

   Period subject to financial charges = 15 days = (15 ÷ 365) year

   Interest charged = RM5 200 × [(18 ÷ 100) × (15 ÷ 365)] = RM38.47

   Late payment charges $= \left(\dfrac{1}{100}\right)$ × (RM5 200 + RM38.47) = RM52.38

   Current amount in February = RM5 200 + RM38.47 + RM52.38 = RM5 290.85

🔹 How do you solve problems involving the use of credit cards?

Credit cardholders should be aware of the advantages and disadvantages of credit cards. Several factors have to be taken into account before using credit cards such as the balance of the existing limit, current cash flow and so on.

Example 17

Ms Chin wants to buy a French made handbag online. She surfs the Internet and finds two interesting promotions:

(a) Company L in Singapore offers promotional price of SGD250. For orders outside Singapore, SGD50 shipping charges apply.

(b) Company V in Malaysia offers promotional price of RM799. Delivery is free for all orders to local addresses.

Ms Chin intends to make payment by credit card and she understands that the bank will charge an additional 1% on each transaction from abroad. Assume the current exchange rate for Malaysian ringgit is

$$\text{RM1} = \text{SGD0.34}$$

As a wise consumer, which offer should Ms Chin choose? Justify your choice.

Solution:

Ms Chin should compare the actual price to be paid if buying from the two companies.

(a) Company L:

   Promotional price = SGD250 × (1 ÷ 0.34) = RM735.29

   Postal charges = SGD50 × (1 ÷ 0.34) = RM147.06

   Additional charges by bank = RM735.29 × $\left(\dfrac{1}{100}\right)$ = RM7.35

   Actual price to be paid = RM735.29 + RM147.06 + RM7.35 = RM889.70

(b) Company V:

   Promotional price = RM799

   Actual price to be paid = RM799

Although the promotional price offered by Company L is cheaper, but the actual price payable is higher due to the additional charges incurred for online purchases from Company L. So, Ms Chin should buy from Company V to save RM90.70.

● How do you calculate loan repayment and instalment?

Each loan will be charged interest on the loan from the date the loan was released to the borrower. There are two calculation methods for loan interest, namely flat interest rate and interest on balance.

Total loan balance is the amount deducted from the initial down payment plus the amount of interest charged.

The monthly instalment is the total amount paid by the borrower to the bank every month to settle the balance of the loan.

▦ Flat interest

In the flat interest method, the interest rate will be calculated on the original loan amount over the term of the loan. So the amount of interest charged per month is fixed.

Example 18

Mrs Lim bought a car worth RM80 000 on credit. She pays 10% down payment and the balance is payable in instalments over 6 years. The flat interest rate imposed by the bank is 4% per annum. What is the amount of repayment and monthly instalment payable by Mrs Lim?

Solution:

Loan amount	= Purchase price – down payment
	= RM80 000 – RM8 000 = RM72 000

$$\text{Interest for 6 years} = RM72\ 000 \times \frac{4}{100} \times 6 \text{ years} = RM17\ 280$$

Total repayment = RM72 000 + RM17 280 = RM89 280 ◄ ⎯ Total repayment can be calculated with the formula $A = P + Prt$

$$\text{Monthly instalment} = \frac{RM89\ 280}{72 \text{ months}} = RM1\ 240 \text{ per month}$$

Example 19

Encik Azlan obtained a personal loan of RM10 000 from Bank Mulia with an interest rate of 4% per annum. The repayment period is 7 years.

What is the monthly instalment to be paid by Encik Azlan?

Solution:

$A = P + Prt$
Loan, P = RM10 000
  $r = 4\%$
  $t = 7$ years

Thus, total repayment

$$A = RM10\ 000 + \left(RM10\ 000 \times \frac{4}{100} \times 7\right)$$
$$= RM10\ 000 + RM2\ 800$$
$$= RM12\ 800$$

$$\text{Monthly instalment} = \frac{RM12\ 800}{84 \text{ months}} = RM152.38$$

🔲 Interest on balance

In addition to the flat interest, banks also offer interest on balance for certain types of loans. In the interest on balance method, the amount of interest charged each month on the loan depends on the amount of the loan balance for that month. Since there is monthly instalment payment, the amount of the loan balance will be reduced, thus the amount of interest for each month will also be reduced.

However, it should be noted that for every instalment paid each month, the priority is given to settle the interest amount in that month, and then the balance is used to settle the outstanding balance of the loan amount.

Example 20

Encik Harith obtained a personal loan of RM10 000 from Bank Mulia with an interest rate of 6% on the balance. The repayment period is 7 years while the monthly instalment is RM150.

Calculate the total amount of interest payable by Encik Harith for the first three months.

Solution:

First month

$$\text{First month interest} = RM10\ 000 \times \frac{6}{100} \times \frac{1}{12}$$
$$= RM50.00$$

$$\text{Loan at the end of first month} = RM10\ 000 + RM50$$
$$= RM10\ 050$$
$$\text{Balance after first instalment} = RM10\ 050 - RM150$$
$$= RM9\ 900$$

Second month

Balance of the loan at the beginning of second month = RM9 900

$$\text{Second month interest} = RM9\ 900 \times \frac{6}{100} \times \frac{1}{12}$$
$$= RM49.50$$

$$\text{Loan at the end of second month} = RM9\ 900 + RM49.50$$
$$= RM9\ 949.50$$
$$\text{Balance after second instalment} = RM9\ 949.50 - RM150$$
$$= RM9\ 799.50$$

Third month

Balance of the loan at the beginning of third month = RM9 799.50

$$\text{Third month interest} = RM9\ 799.50 \times \frac{6}{100} \times \frac{1}{12}$$
$$= RM49.00$$

$$\text{Loan at the end of third month} = RM9\ 799.50 + RM49.00$$
$$= RM9\ 848.50$$
$$\text{Balance after third instalment} = RM9\ 848.50 - RM150$$
$$= RM9\ 698.50$$

Total interest for the first three months is RM50.00 + RM49.50 + RM49.00 = RM148.50

Scan the QR Code or visit http://bukutekskssm.my/Mathematics/F3/Chapter3InterestRate Calculation.pdf for more information about loan with flat interest and interest on debts.

CHAPTER 3

How do you solve problems involving loans?

Example 21

Ameera wants to buy a car and has paid a deposit of RM4 800. The balance will be settled through a vehicle loan.

RM48 000

State the advantages and disadvantages of the vehicle loan chosen by Ameera.

Solution:

Advantages	Disadvantages
• Repayment of vehicle loan in monthly instalments allows Ameera to own the car. • Does not require a lump sum payment.	• The car will be repossessed if instalments are not made. • The total amount of repayment is high due to interest charged on the loan.

Example 22

Mr Vincent is a teacher with a monthly income of RM2 800. He decides to buy a new car to commute to work. He contacts two banks to get a loan of RM40 000. In addition, he needs RM1 500 to cover other expenses every month.

The following are loan packages offered by two banks to Mr Vincent.

Loan details	Bank A	Bank B
Loan amount	RM40 000	RM40 000
Payment period	9 years	6 years
Interest rate	4.5 %	5 %
Guarantor	Not required	Required

TIPS

Do not borrow money from unlicensed moneylenders as the loan:
♦ will be made according to their own terms and conditions.
♦ imposes very high interest charges which is compounded daily.
♦ exposes you and your family to danger if you make late payment.
♦ forces you to make an additional loan to repay previous loan.

Suggest to Mr Vincent which bank is better suited for his car loan. State your reasons.

Solution:

Understanding the problem

The amount of monthly instalments payable by Mr Vincent provided that it is not burdensome.

Planning a strategy

• Calculate monthly interest.
• Calculate monthly instalment payable.

CHAPTER 3

Implementing the strategy

The amount of money repaid to Bank A	The amount of money repaid to Bank B
$A = P + Prt$ $A = \text{RM40 000} + \text{RM } 40\ 000 \times \dfrac{4.5}{100} \times 9$ Total money repaid $= \text{RM40 000} + \text{RM16 200}$ $= \text{RM 56 200}$ Monthly instalment $= \dfrac{\text{RM56 200}}{108 \text{ months}}$ $= \text{RM520.37}$	$A = P + Prt$ $A = \text{RM40 000} + \text{RM40 000} \times \dfrac{5}{100} \times 6$ Total money repaid $= \text{RM40 000} + \text{RM12 000}$ $= \text{RM52 000}$ Monthly instalment $= \dfrac{\text{RM52 000}}{72 \text{ months}}$ $= \text{RM722.22}$

Making a conclusion

Mr Vincent should choose Bank A because the monthly instalment for Bank A is lower and less burdensome to him. However, different payment terms result in different amount of interest that will be paid. Therefore, Mr Vincent could also choose Bank B as the total interest paid will be less for Bank B.

Dynamic Challenge

Test Yourself

1. What is savings?
2. Specify features related to Fixed Deposit Account.
3. Encik Lipong deposits a sum of RM8 000 into Bank Pantas with an interest rate of 4% over 2 years. What is the amount of savings at the end of the second year?

Skills Enhancement

1. How can cost averaging strategy help an investor?
2. Explain the meaning of investment in real estate.
3. The following conversation is between Ramesh and Ismail regarding the purchase of shares.

Ramesh, I have just bought shares of BHP Berhad.

That's great! You will get returns from your investment.

Explain three types of return that will be received by Ismail.

4. The following are two types of investments.

Lee Chong bought 3 000 units of shares of a public limited company.	Mokhtar bought 3 000 000 units of unit trusts.

Explain the two differences between the two types of investments above.

5. Encik Shah wants to deposit RM10 000 into a fixed deposit account for 9 months. The following are the fixed deposit interest rates for different terms offered by a bank to Encik Shah.

Duration	Annual interest rate
1 month	3.0
3 months	3.5
6 months	3.75
9 months	4.00
12 months	4.25

Calculate the amount of interest that will be received by Encik Shah if he is saving for a 9-month term.

6. In 2018, Encik Zainal holds 6 000 units of shares of Syarikat Vision Sdn. Bhd. which is worth RM1 per share unit. During the year, the company declared a 6% dividend and a bonus issue at 1 new share for 2 share units held. At the end of 2018, the share price rose to RM2.30 per unit. Calculate
(a) the amount of dividend received by Encik Zainal
(b) the number of bonus share units to be received by Encik Zainal
(c) the number of share units held by Encik Zainal after receiving the bonus shares

7. Complete the following table.

Deposit amount (RM)	Flat interest rate	Savings period (years)	Total interest accumulated
10 000	5%	2	
5 000		1	150
4 000	6%		720

8. Mr Kishendran deposits RM5 000 into a fixed deposit account with 4% interest rate compounded every 3 months for a period of 3 years. Calculate the amount of interest accrued after the third year.

Self Mastery

1. Mr Oswald Alphonsus borrowed RM15 000 from Bank Yakin to start a tailoring business in Rawang. The bank charges a 5% flat interest rate for a repayment period of 5 years. How much interest will be paid to the bank by Mr Oswald Alphonsus?

2. Mrs Emily Francis saves RM10 000 in a bank. By the end of the eighth year, the money collected amounts to RM19 992.71. If the bank pays an annual interest of x% for a year and is compounded every 6 months, calculate the value of x.

3. Puan Noraini Mitis deposits a certain amount of money into her savings account which provides an interest rate of 2% per annum and compounded quarterly. What is the initial deposit made by Puan Noraini Mitis if the money collected at the end of the fifth year is RM7 734.26?

4. Puan Zaiton bought 1 000 share units of Syarikat Pelita Berhad at RM2.00 per unit. At the end of the year, Syarikat Pelita Berhad paid a dividend of 20 sen per unit to all its shareholders. The following year, Puan Zaiton sold all the shares held when the share price rose to RM2.20 per unit. Calculate the total return for Puan Zaiton.

5. Encik Iskandar takes a personal loan of RM20 000 from Bank Cergas with an interest rate of 4% per annum. The repayment term is for 10 years. What is the monthly instalment payable by Encik Iskandar?

6. Puan Balkis takes a personal loan of RM8 000 from Bank Sentosa with interest rate of 4% per annum on the balance. The payback period is 4 years while the monthly instalment is RM110. Calculate the amount of interest payable by Puan Balkis within 2 months.

7. The following is a promotional leaflet offered by Seng Hong Company.

The following conversation took place between Masnah Rasam and Nanak Aliong after they studied the promotional leaflet above.

Nanak Aliong, I want to buy a television as advertised in the above leaflet in instalment because I can only afford a low monthly payment.

Masnah Rasam, I think it is better for you to pay in cash rather than instalment.

(a) What is your view on Masnah Rasam's opinion?
(b) Calculate the amount of interest paid and the interest rate on this instalment payments.
(c) If you want to buy a television, how would you purchase it?

8. Ms Kayal borrows from Bank Desa RMX with an interest rate of 5% per annum. The payback period is 8 years. If the monthly instalment paid is RM218.75, calculate the amount of money borrowed by Ms Kayal.

9. Mr Murugan has borrowed RM16 000 from Bank Orkid for personal use. He will repay over 5 years with a monthly instalment of RM320. Calculate the yearly interest charged by the bank.

10. Puan Sapiah borrowed RM12 000 from a bank with interest rate of 3% per annum for 5 years. Meanwhile, Puan Shafiqah Ira borrows the same amount of money from another bank with a rate of 4.5% per annum for 5 years. Calculate and state the difference between the total interest paid by Puan Sapiah and Puan Shafiqah Ira.
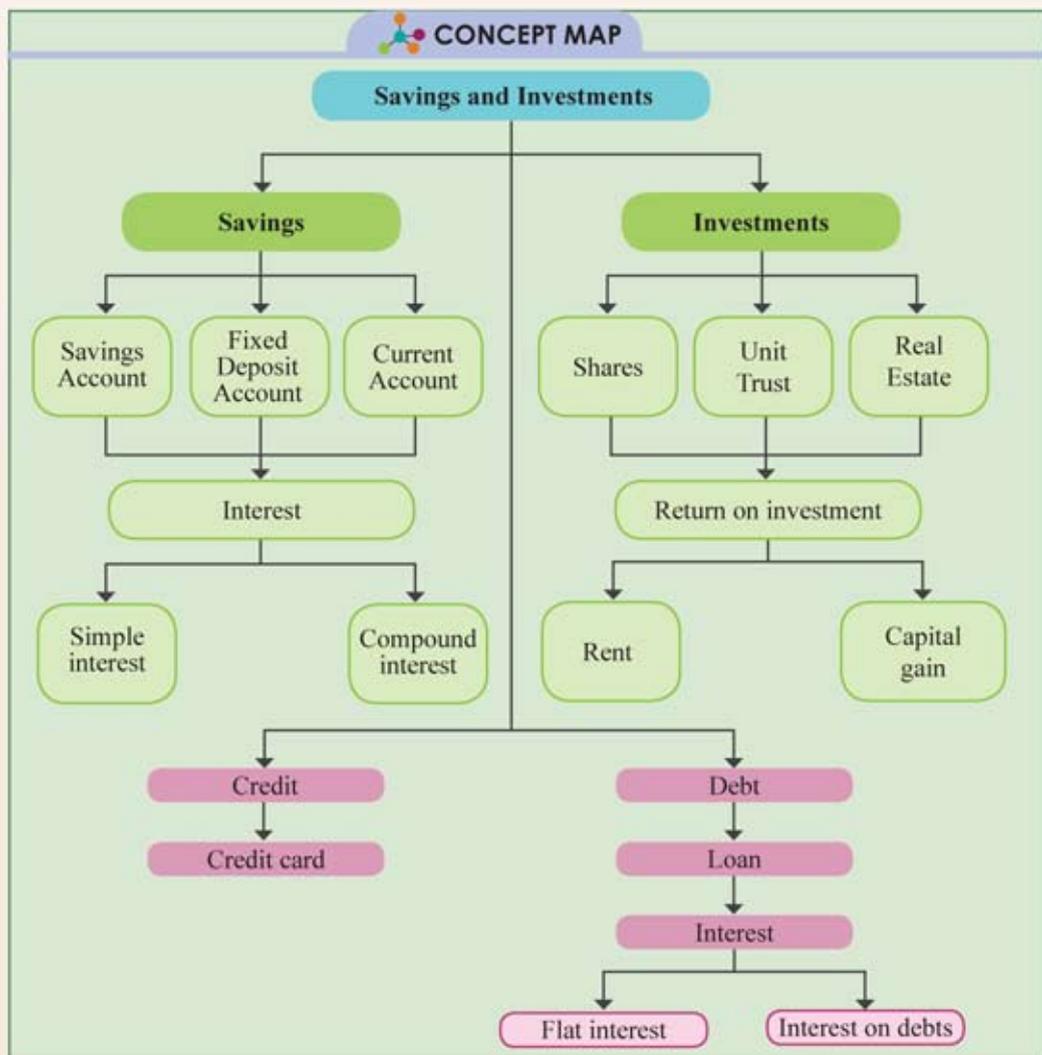
PROJECT 📋

Assume that you have won RM1 million in a puzzle contest.

1. State the way in which you will invest the money.

2. Explain why you chose this form of investment.

🔬 CONCEPT MAP

Savings and Investments

Savings

- Savings Account
- Fixed Deposit Account
- Current Account

Interest
- Simple interest
- Compound interest

Investments

- Shares
- Unit Trust
- Real Estate

Return on investment
- Rent
- Capital gain

Credit → Credit card

Debt → Loan → Interest
- Flat interest
- Interest on debts

SELF-REFLECT

At the end of this chapter, I can:

		🙂	🙁
1.	Recognise various types of savings and investments.		
2.	Perform calculations involving simple interest and compound interest for savings, and hence explain the impact of changes in period, rate of interest or return and compounding frequency on the future value of savings.		
3.	Perform calculations involving return on investments, and hence explain the factors that affect return on investments and its impacts.		
4.	Compare and contrast potential risks, return and liquidity of various types of savings and investments.		
5.	Calculate the average cost per share for the investment of shares using the ringgit cost averaging strategy and explain the benefits of the strategy.		
6.	Solve problems involving savings and investments.		
7.	Explain the meaning of credit and debt, and hence describe the wise management of credit and debt.		
8.	Investigate and describe the advantages and disadvantages of credit card and ways to use it wisely.		
9.	Investigate and describe the impact of minimum and late payments for credit card usage.		
10.	Solve problems involving the use of credit cards.		
11.	Calculate the total amount of loan repayment and instalment, with various interest rates and different loan periods.		
12.	Solve problems involving loans.		

⚙ EXPLORING MATHEMATICS

You can visit the Credit Counselling and Debt Management Agency (AKPK) website to calculate the required period and the amount of interest payable to settle your credit card debt.

CHAPTER 3