وزارة التربيـــة والتعليـــم والتعليـــم العالـــي
Ministry of Education and Higher Education
State of Qatar • دولـــة قطـــر

Financial Calculations
الرياضيات المالية

Grade 12 | Banking

نبنـــي اقتصاديّي المستقبل

- Semester 2

طبعـة 1444 - 2022

حضرة صاحب السّموّ

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أمير دولة قطر

النشيد الوطني

قَسَماً بِمَنْ رَفَعَ السَّمَاءْ
قَسَمًا بِمَنْ نَشَرَ الضِّيَاءْ

قَطَرٌ سَتَبْقَى حُرَّةً
تَسْمُو بِرُوحِ الأَوْفِيَاءْ

سِيرُوا عَلَى نَهْجِ الأُلَى
وَعَلَى ضِيَاءِ الأَنْبِيَاءْ

قَطَرٌ بِقَلْبِي سِيرَةٌ
عِزٌّ وَأَمْجَادُ الإِبَاءْ

قَطَرُ الرِّجَالِ الأَوَّلِين
حُمَاتُنَا يَوْمَ النِّدَاءْ

وَحَمَائِمٌ يَوْمَ السَّلاَمْ
جَوَارِحٌ يَوْمَ الفِدَاءْ

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- **Ms Grisel Arancio** — *Administration and template design*
- **Ms Janet Unwin**

Contents

About this Learner Resource:

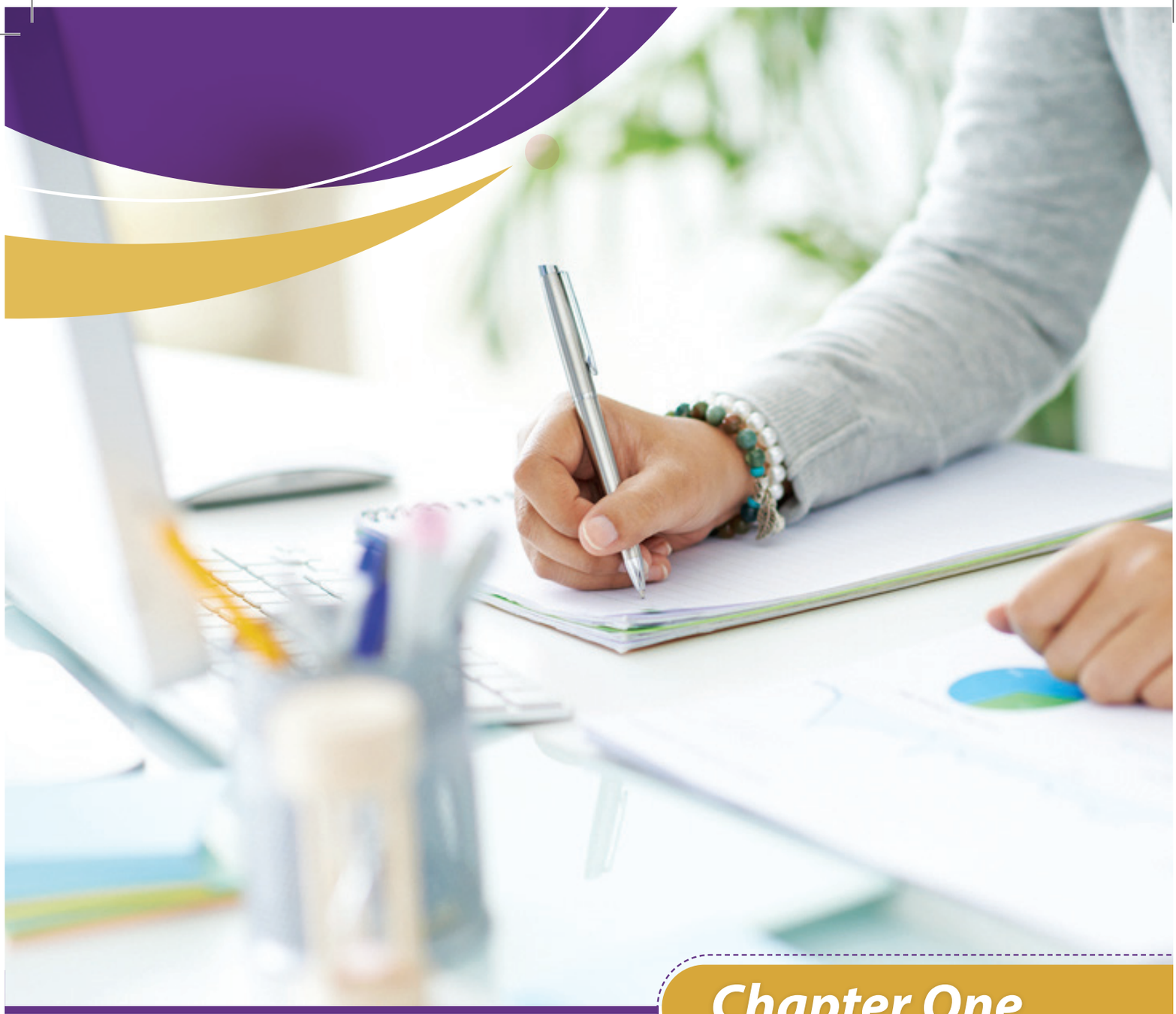
Welcome to the Learner Resource for Financial Calculations. In this Learner Resource you will be learning the skills and knowledge that will allow you to analyse, evaluate businesses, projects, budgets, and other finance related transactions to determine their performance and suitability.

It is suggested that to meet all the requirements of Financial Calculations you will need to complete the following tasks:

- Read the information contained in this Learner Resource.
- Complete the activities.
- Complete all the required assessment/s for this unit.

The topics in this Learner Resource are:

- Compound Interest on Time Deposit.
- The Discount and Present Value Using.
- Compound Interest.
- Settlement of Long-Term Debts.
- Annuities using Compound Interest.
- Long Term Loans using Compound Interest.



Chapter One

Compound Interest on Time Deposits

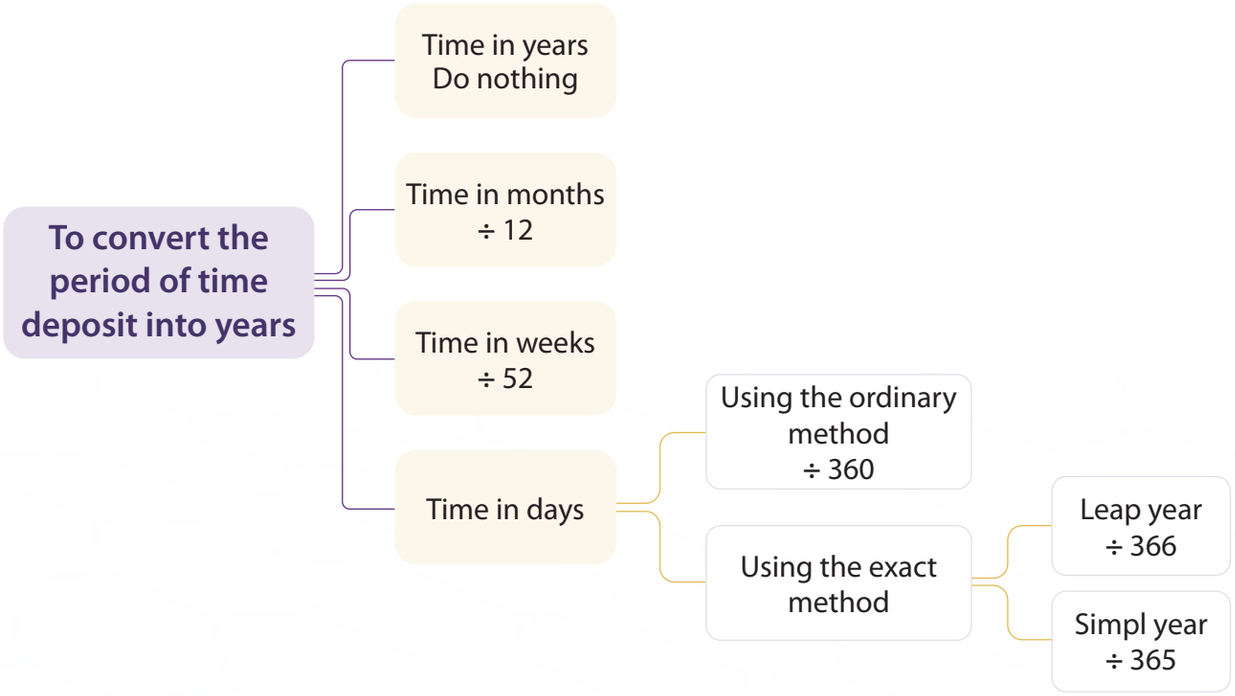
Contents

1. Convert the time of interest to years.
2. Compute the Compound interest value for one deposit using time by years, months and days.
3. Calculate the balance for one deposit.
4. Compute the principal of deposit.
5. Compute the time of deposit.
6. Compute the rate of deposit.

Introduction To Compound Interest:

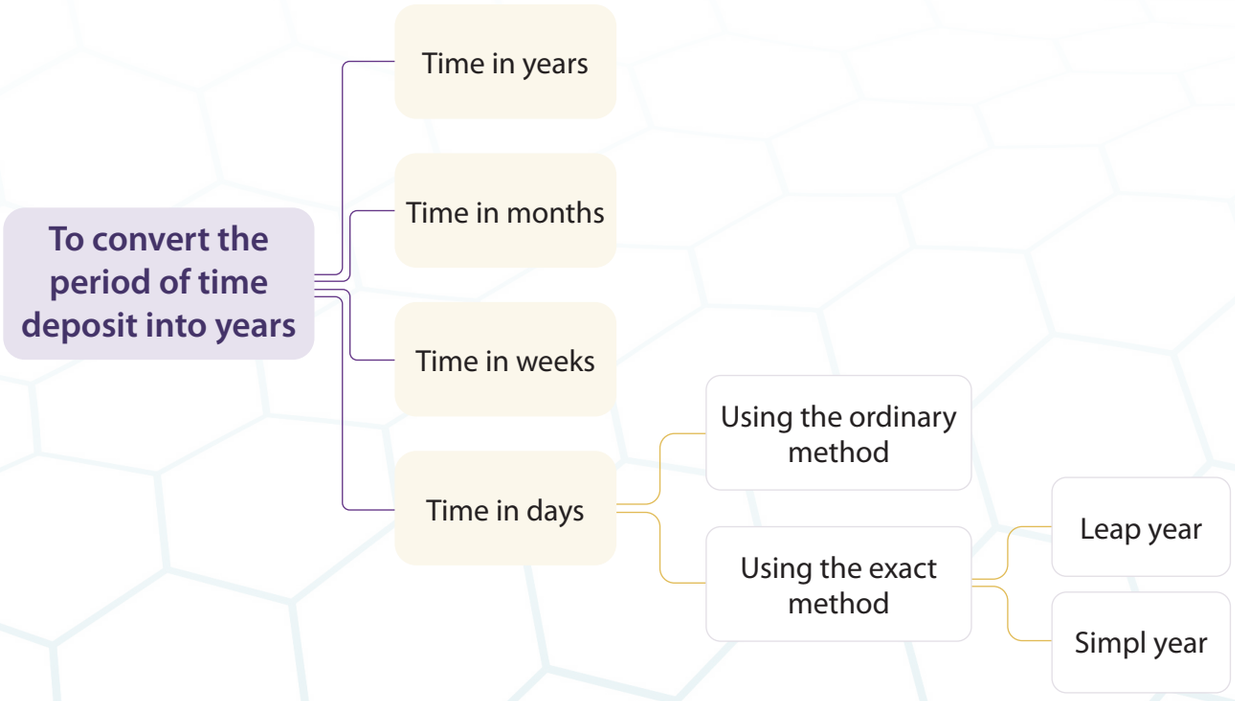
Activity No. *1*

➤ **Fill in the following diagram, which represents the period of time deposit.**



Activity No. *2*

➤ **Fill in the following diagram, which represents the period of time deposit.**



Activity No. 3

➤ **Match between group A and group B:**

Group A	Matching	Group B
1. We have to divide by 366/365		**A.** To convert time from weeks to years
2. You take deposit interest from the bank		**B.** When you take a loan or finance from a bank
3. Finance		**C.** In the traditional banking system, the money you take from the bank is called a
4. You have to pay lending interest		**D.** To convert time from months to years
5. 365 days		**E.** When you deposit money in a saving account
6. Loan		**F.** In the Islamic banking system, the money you take from the bank is called a
7. We have to divide by 12		**G.** To convert time from days to years
8. 366 days		**H.** The simple year has
9. We have to divide by 52		**I.** The leap year has

Activity No. 4

➤ Convert the following durations from months to years.

Months	Years	Months	Years	Months	Years
12		30		51	
24		33		56	
36		38		59	
48		39		60	
17		40		63	
26		43		68	
28		47		75	

Activity No. 5

➤ Convert the following durations from weeks to years.

Weeks	Years	Weeks	Years	Weeks	Years
12		30		51	
24		33		56	
36		38		59	
48		39		60	
17		40		63	
26		43		68	
28		47		75	

Activity No. 6

➤ **Convert the following durations from days to years using the exact method (365/366)**

Days 365	Years	Days 366	Years	Days 365	Years
30		*85*		*365*	
31		*125*		*1000*	
39		*270*		*940*	
14		*366*		*880*	
27		*430*		*90*	
45		*590*		*3600*	
60		*710*		*300*	

Activity No. 7

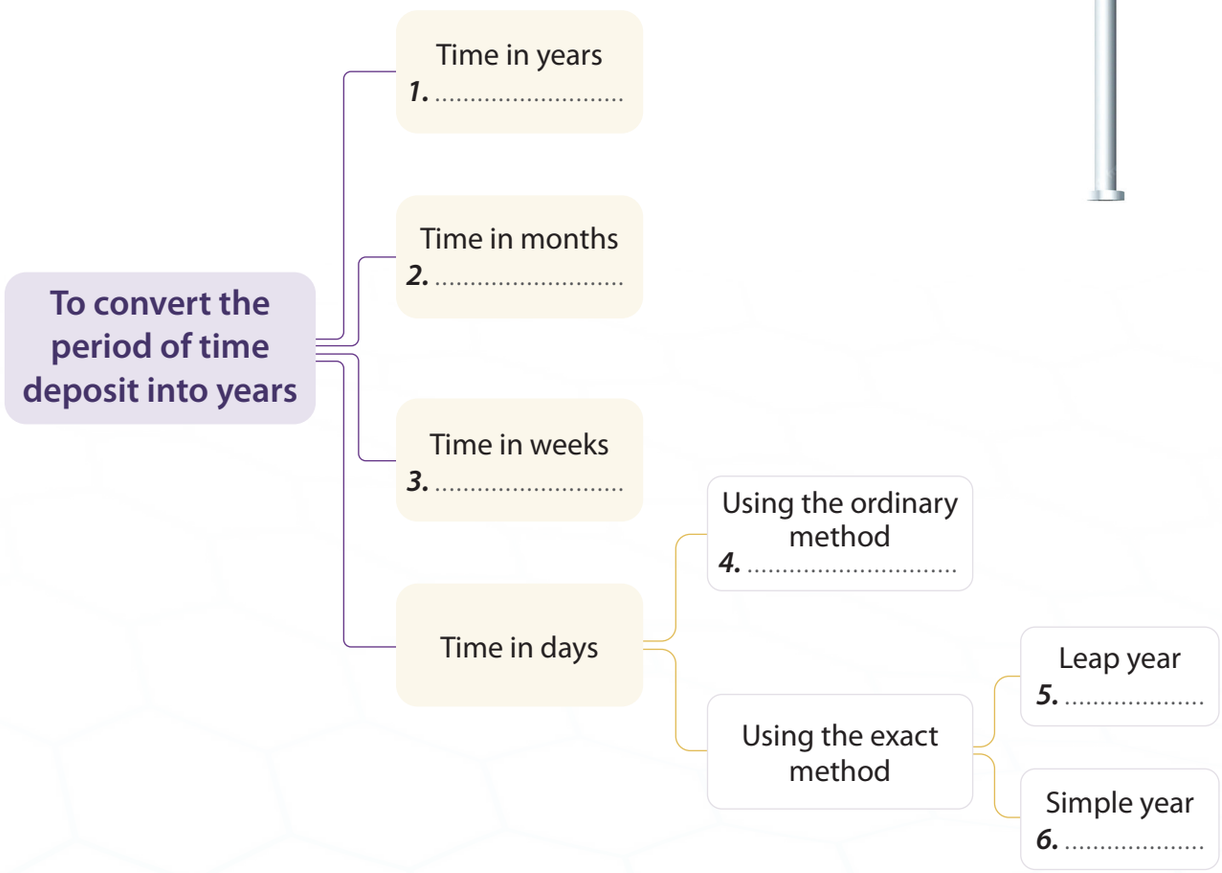
➤ **Convert the following durations from days to years using the ordinary method (360)**

Days	Years	Days	Years	Days	Years
30		*85*		*365*	
31		*125*		*1000*	
39		*270*		*940*	
14		*366*		*880*	
27		*430*		*90*	
45		*590*		*3600*	
60		*710*		*300*	

Test Your Knowledge and Skills:

Activity No. 1

➤ **Fill in the following diagram, which represents the period of time deposit.**



1. .....
2. .....
3. .....
4. .....
5. .....
6. .....

Activity No. 2

➤ **Match between group A and group B:**

Group A	Matching	Group B
1. We have to divide by 366/365		**A.** To convert time from weeks to years
2. You take deposit interest from the bank		**B.** When you take a loan or finance from a bank
3. Finance		**C.** In the traditional banking system, the money you take from the bank is called a
4. You have to pay lending interest		**D.** To convert time from months to years
5. 365 days		**E.** When you deposit money in a saving account
6. Loan		**F.** In the Islamic banking system, the money you take from the bank is called a
7. We have to divide by 12		**G.** To convert time from days to years
8. 366 days		**H.** The simple year has
9. We have to divide by 52		**I.** The leap year has
10. The number of weeks in a year is		**J.** 52 weeks

Activity No. 3

➤ Convert the following durations from months to years:

Months	Years	Months	Years	Months	Years
12		30		51	
24		33		56	
36		38		59	
48		39		60	

Activity No. 4

➤ Convert the following durations from weeks to years:

Weeks	Years	Weeks	Years	Weeks	Years
12		30		51	
24		33		56	
36		38		59	
48		39		60	

Activity No. 5

➤ Convert the following durations from days to years using the exact method (365/366)

Days 365	Years	Days 366	Years	Days 365	Years
30		85		365	
31		125		1000	
39		270		940	
14		366		880	

Activity No. 6

➤ **Convert the following durations from days to years using the ordinary method (360)**

Days	Years	Days	Years	Days	Years
30		*85*		*365*	
31		*125*		*1000*	
39		*270*		*940*	
14		*366*		*880*	

The balance and interest value, when Duration is in Years:

Activity No. *1*

Omar opened a time deposit account in IBQ. He deposited QR 40,000. The compound annual interest rate is 1.5% credited on account one time every year. Calculate the balance and interest value for 2 years.

Activity No. *2*

Rajaa opened a time deposit account in IBQ. He deposited QR 82,000. The compound annual interest rate is 4% credited on account one time every year. Calculate the balance and interest value for 6 years.

Activity No. 3

Ahmad opened a time deposit account in QIB. He deposited QR 140,000.The compound annual interest rate is 3.25% credited on account one time every year. Calculate the balance and interest value for 3 years.

Activity No. 4

Turki opened a time deposit account in QIB. He deposited QR 260,000. The compound annual interest rate is 4.75% credited on account one time every year. Calculate the balance and interest value for 2 years and three quarters.

Activity No. 5

Omar opened a time deposit account in IBQ. He deposited QR 40,000. The compound annual interest rate is 1.5% credited on account two times every year. Calculate the balance and interest value for 6 and half years.

Activity No. 6

Rajaa opened a time deposit account in IBQ. He deposited QR 82,000. The compound annual interest rate is 4% credited on account two times every year. Calculate the balance and interest value for 6 years.

Activity No. 7

Khaled opened a time deposit account in QIB. He deposited QR 140,000.The compound annual interest rate is 3.25% credited on account every half a year. Calculate the balance and interest value for 3 years.

Activity No. 8

Khalifa opened a time deposit account in QIB. He deposited QR 260,000.The compound annual interest rate is 4.75% credited on account every 6 months. Calculate the balance and interest value for 4 years.

Activity No. *9*

Hamad opened a time deposit account in IBQ. He deposited QR 40,000. The compound annual interest rate is 1.5% credited on account three times every year. Calculate the balance and interest value for 7 years.

Activity No. *10*

Louai opened a time deposit account in IBQ. He deposited QR 82,000. The compound annual interest rate is 4% credited on account three times every year. Calculate the balance and interest value for 10 years.

Activity No. *11*

Abdullah opened a time deposit account in QIB. He deposited QR 140,000. The compound annual interest rate is 3.25% credited every 4 months. Calculate the balance and interest value for 3 years.

Activity No. *12*

Sameh opened a time deposit account in QIB. He deposited QR 260,000. The compound annual interest rate is 4.75% credited on account every 6 months. Calculate the balance and interest value for 1 year and three quarters.

Activity No. *13*

Thawab opened a time deposit account in IBQ. He deposited QR 40,000. The compound annual interest rate is 1.5% credited on account 2 times every month. Calculate the balance and interest value for 2.7 years.

Activity No. *14*

Arhama opened a time deposit account in IBQ. He deposited QR 82,000. The compound annual interest rate is 4% credited on account 4 times every year. Calculate the balance and interest value for 6.9 years.

Activity No. *15*

Fahd opened a time deposit account in QIB. He deposited QR 140,000. The compound annual interest rate is 3.25% credited quarterly. Calculate the balance and interest value for 3.5 years.

Activity No. *16*

Jaber opened a time deposit account in QIB. He deposited QR 260,000. The compound annual interest rate is 4.75% credited on account quarterly. Calculate the balance and interest value for 5 years and one quarter.

Activity No. *17*

Jassim opened a time deposit account in IBQ. He deposited QR 40,000. The compound annual interest rate is 1.5% credited on account 12 times every year. Calculate the balance and interest value for 2.5 years.

Activity No. *18*

Yaser opened a time deposit account in IBQ. He deposited QR 82,000. The compound annual interest rate is 4% credited on account 12 times every year. Calculate the balance and interest value for 5 years.

Activity No. *19*

Mohamed opened a time deposit account in QIB. He deposited QR 140,000. The compound annual interest rate is 3.25% credited monthly. Calculate the balance and interest value for 3 years.

Activity No. *20*

Mahmoud opened a time deposit account in QIB. He deposited QR 260,000. The compound annual interest rate is 4.75% credited on account monthly. Calculate the balance and interest value for 4 years and two quarters.

Case Study 1:

Yasser has two options for depositing QR50,000 for 5 years with two banks. The first choice is a one time deposit account in IBQ by compound annual interest rate is 7% credited on account one times every year. The second choice is a time deposit account in QIB by compound annual interest rate is 2% credited on account 4 times every year. Which option is the best for Yasser?

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Case Study 2:

Yasser has two options for depositing QR75,000 for 3 years with two banks. The first choice is a time deposit account in CBQ by compound annual interest rate is 1.25% credited on account monthly. The second choice is a time deposit account in QIB by compound annual interest rate is 3.25% credited on account every three time every year. Which option is the best for Yasser?

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Case Study 3:

Jaber has three options for depositing QR38,000 for 4 years with two banks. The first choice is in IBQ by compound annual interest rate 3.75% credited on account 4 times every year. The second choice is in QIB by compound annual interest rate 4.5% credited on account 3 times every year. The third choice is in QNB by compound annual interest rate 5% credited on account every six months. Which option is the best for Jaber?

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Case Study 4:

Tarek has three options for depositing QR90,000 for 6 years with three banks. The first choice is in IBQ by compound annual interest rate is 4.25% credited on account 4 times every year. The second choice is in QIB by The compound annual interest rate is 0.25% credited on account 2 times every month. The third choice is in QNB by The compound annual interest rate is 1% credited on account every month. Which option is the best for Tarek?

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When Duration is in Months:

Activity No. *1*

Abdullah opened a time deposit account in QIB. He deposited QR92,000. The compound annual interest rate is 3.75% credited on account one time every year. Calculate the balance and interest value for 7 months.

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Activity No. *2*

Abdullah opened a time deposit account in QIB. He deposited QR150,000. The compound annual interest rate is 6% credited on account one time every year. Calculate the balance and interest value for 5.5 months.

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Activity No. *3*

Farajj opened a time deposit account in QIB. He deposited QR110,000 in 01/04/2013. The compound annual interest rate is 4% credited on account 2 time every year. Calculate the balance and interest value in 31/12/2013.

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Activity No. 4

Turki opened a time deposit account in QIB. He deposited QR185,000. The compound annual interest rate is 2.75% yearly credited on account 2 time every year. Calculate the balance and interest value for 4 months.

Activity No. 5

Jaber opened a time deposit account in Barwa. He deposited QR54,000. The compound annual interest rate is 5% yearly credited on account 3 time every year. Calculate the balance and interest value for 8 months.

Activity No. 6

Jassim opened a time deposit account in IBQ. He deposited QR40,000. The compound annual interest rate is 1.5% credited on account 4 times every year. Calculate the balance and interest value for 2.5 months.

Activity No. 7

Yaser opened a time deposit account in IBQ. He deposited QR82,000. The compound annual interest rate is 4% credited on account 6 times every year. Calculate the balance and interest value for 7 months.

Activity No. 8

Mohamed opened a time deposit account in QIB. He deposited QR140,000. The compound annual interest rate is 3.25% credited monthly. Calculate the balance and interest value for 15 months.

Activity No. 9

Mahmoud opened a time deposit account in QIB. He deposited QR260,000. The compound annual interest rate is 4.75% credited on account monthly. Calculate the balance and interest value for 12 months.

When Time is in Weeks:

Activity No. *1*

Jassim opened a time deposit account in IBQ. He deposited QR73,000. The compound annual interest rate is 2.5% credited on account 12 times every year. Calculate the balance and interest value for 22 weeks.

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Activity No. *2*

Omar opened a time deposit account in IBQ. He deposited QR68,750. The compound annual interest rate is 4% credited on account 6 times every year. Calculate the balance and interest value for 39 weeks.

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Activity No. *3*

Ali opened a time deposit account in QIB. He deposited QR192,000. The compound annual interest rate is 3.75% credited on account 4 times every year. Calculate the balance and interest value for for 17 weeks.

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Activity No. 4

Jassim opened a time deposit account in IBQ. He deposited QR35,000. The compound annual interest rate is 2.25% credited on account 3 times every year. Calculate the balance and interest value for 40 weeks.

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Activity No. 5

Omar opened a time deposit account in IBQ. He deposited QR92,900. The compound annual interest rate is 4.50% credited on account 2 times every year.Calculate the balance and interest value for 25 weeks.

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Activity No. 6

Ali opened a time deposit account in QIB. He deposited QR240,000. The compound annual interest rate is 2.75% credited on account 1 time every year. Calculate the balance and interest value for for 39 weeks.

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When Time is in Days, The 365 Exact Method:

Activity No. *1*

Abdullah opened a time deposit account in QIB. He deposited QR48,000. The compound annual interest rate is 3% credited on account one time every year. Calculate the balance and interest value for 147 days using the 365 exact method.

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Activity No. *2*

Seoud opened a time deposit account in QIB. He deposited QR158,000. The compound annual interest rate is 5% credited on account 2 times every year. Calculate the balance and interest value for 267 days using the 365 exact method.

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Activity No. *3*

Abelazeez opened a time deposit account in CBQ. He deposited QR180,000. The compound annual interest rate is 4.25% credited o naccount 3 times every year. Calculate the balance and interest value for 670 days using the 365 exact method.

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Activity No. *4*

Saeed opened a time deposit account in CBQ. He deposited QR40,000. The compound annual interest rate is 2.50% credited on account 4 times every year. Calculate the balance and interest value for 725 days using the 365 exact method.

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Activity No. *5*

Jaber opened a time deposit account in IBQ. He deposited QR279,000. The compound annual interest rate is 5.75% credited on account 6 times every year. Calculate the balance and interest value for 470 days using the 365 exact method.

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Activity No. 6

Abelazeez opened a time deposit account in CBQ. He deposited QR110,000. The compound annual interest rate is 2.75% credited on account 12 times every year. Calculate the balance and interest value for 670 days using the 365 exact method.

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Activity No. 7

Saeed opened a time deposit account in CBQ. He deposited QR340,000. The compound annual interest rate is 2.50% credited on account 365 times every year. Calculate the balance and interest value for 725 days using the 365 exact method.

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Activity No. 8

Jaber opened a time deposit account in IBQ. He deposited QR160,000. The compound annual interest rate is 1.25% credited on account 365 times every year. Calculate the balance and interest value for 200 days using the 365 exact method.

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When Time is in Days, The 366 Exact Method:

Activity No. *1*

Jassim opened a time deposit account in IBQ. In 03/03/2020, he deposited QR57,000. The compound annual interest rate is 2% credited on account one time every year. Calculate the balance and interest value in 20/12/2021 using the 366 exact method.

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Activity No. *2*

Omar opened a time deposit account in IBQ. He deposited QR81,000 in 01/07/2012. The compound annual interest rate is 3.25% credited on account 2 times every year. Calculate the balance and interest value in 31/12/2012 using the 366 exact method.

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Activity No. 3

Ali opened a time deposit account in QIB. He deposited QR137,000 in 20/01/2012. The compound annual interest rate is 2% credited on account 3 times every year. Calculate the balance and interest value in 31/12/2012 using the 366 exact method.

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Activity No. 4

Ali opened a time deposit account in QIB. He deposited QR52,000 in 03/02/2012. The compound annual interest rate is 1.50% credited on account 4 times every year. Calculate the balance and interest value in 31/06/2012 using the 366 exact method.

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Activity No. 5

Abelazeez opened a time deposit account in CBQ. He deposited QR110,000. The compound annual interest rate is 2.75% credited on account 6 times every year. Calculate the balance and interest value for 670 days using the 366 exact method.

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Activity No. 6

Saeed opened a time deposit account in CBQ. He deposited QR340,000. The compound annual interest rate is 2.50% credited on account 12 times every year. Calculate the balance and interest value for 725 days using the 366 exact method.

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Activity No. 7

Abelazeez opened a time deposit account in CBQ. He deposited QR180,000. The compound annual interest rate is 4.25% credited on account 366 times every year. Calculate the balance and interest value for 670 days using the 366 exact method.

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When Time is in Days, The 360 Ordinary Method:

Activity No. *1*

Abdullah opened a time deposit account in QIB. In 01/11/2013 he deposited QR41,000. The compound annual interest rate is 3.75% credited on account one time every year. Calculate the balance and interest value in 31/12/2013 using the 360 ordinary method.

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Activity No. *2*

Saoud opened a time deposit account in QIB. He deposited QR230,000 in 01/02/2010. The compound annual interest rate is 1.25% credited on account 2 times every year. Calculate the balance and interest value in 31/12/2013 using the 360 ordinary method.

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Activity No. 3

Ali opened a time deposit account in CBQ. He deposited QR609,000 in 01/04/2012. The compound annual interest rate is 3.5% credited on account 6 times every year. Calculate the balance and interest value in 31/12/2013 using the 360 ordinary method.

Activity No. 4

Fahd opened a time deposit account in CBQ.He deposited QR260,000 in 01/06/2012. The compound annual interest rate is 2% credited on account 12 times every year. Calculate the balance and interest value in 31/12/2013 using the 360 ordinarymethod.

Activity No. 5

Nawaf opened a time deposit account in CBQ. He deposited QR110,000. The compound annual interest rate is 2.75% credited on account 3 times every year. Calculate the balance and interest value for 670 days using the 360 ordinary method.

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Activity No. 6

Saeed opened a time deposit account in CBQ. He deposited QR340,000. The compound annual interest rate is 2.50% credited on account 4 times every year. Calculate the balance and interest value for 725 days using the 360 ordinary method.

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Activity No. 7

Abdullah opened a time deposit account in CBQ. He deposited QR180,000. The compound annual interest rate is 4.25% credited on account 360 times every year. Calculate the balance and interest value for 670 days using the 360 ordinary method.

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Finding The Principal For a Time Deposit:

Activity No. *1*

A principal amount is invested for 3 years at compound annual interest rate of 2.5% credited on account 1 time every year. The total amount at maturity is $25,000. Find the principal amount and the interest value.

Activity No. *2*

A principal amount is invested for 60 months at compound annual interest rate of 4.75% credited on account 1 time every year.The total amount at maturity is QAR264,800.Find the principal amount and the interest value.

Activity No. 3

Jaber wants to finance his university tuition fees. He agreed with QNB to invest a principal amount as a time deposit at compound annual interest rate of 6.5% credited on account 2 times every year The duration of the deposit is 180 weeks, The total amount is QAR 350,000. Find the principal amount and the interest value.

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Activity No. 4

Mohamed wants to finance his university tuition fees. He agreed with QIB to invest a principal amount as a time deposit at compound annual interest rate of 3.5% credited on account 3 times every year The duration of the deposit is 180 days, The total amount is QAR 120,000. Find the principal amount and the interest value using the 360 ordinary method.

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Activity No. 5

Rakan wants to finance his university tuition fees. He agreed with IBQ to invest a principal amount as a time deposit at compound annual interest rate of 3.25% credited on account 4 times every year The duration of the deposit is 270 days, The total amount is QAR 70,000. Find the principal amount and the interest value using the 365 exact method.

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Activity No. 6

Khalifa wants to finance his university tuition fees. He agreed with QIB to invest a principal amount as a time deposit at compound annual interest rate of 2.75% credited on account 6 times every year The duration of the deposit is 90 days, The total amount is QAR 55,000. Find the principal amount and the interest value using the 366 exact method.

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Activity No. 7

Jassim has time deposits in three banks, QIB, QNB, and CBQ. In each of these banks the compound annual interest rate is 3.5%; 2.75%; 4.25% credited on account 2, 3, 4 times every year respectively. The deposit time for each amount is 180 days; 90 days; 270 days. The total amount for each deposit is QAR 214,000; 126,000; 184,000. Compute the interest value and principal for the three accounts using he 360 ordinary methods.

Finding The Duration of Time Deposit:

Activity No. *1*

Mejeb opened a time deposit in City bank. He deposited QR 380,000 at compound annual interest rate of 3.50% credited on account 3 times every year. Finally, he got a total amount of QR 410,800. Calculate the duration of the deposit in years.

Activity No. *2*

Taher opened a time deposit in IBQ. He deposited QR 150,000 at compound annual interest rate of 2.00% credited on account 4 times every year. Finally he got a total amount of QR 158,000. Calculate the duration of the deposit in years.

Activity No. 3

Faisal opened a time deposit in HSBC. He deposited QR720,000 at compound annual interest rate of 5% credited on account 6 times every year. Finally, he got a total amount of QR752,400. Calculate the duration of the deposit.

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Activity No. 4

Khalifa opened a time deposit in Alkhalej bank. He deposited QR57,000 at compound annual interest rate of 4% credited on account 12 times every year. Finally, he got a total amount of QR64,000. Calculate the duration of the deposit by months.

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Finding The Rate of Time Deposit:

Activity No. *1*

Saoud opened a time deposit in Barwa bank. He deposited QR 130,000 for 1 and half year. Finally, he got a total amount of QR135,600. Calculate the compound annual interest rate of the deposit, if the interest is credited one time every year.

Activity No. *2*

Hamad opened a time deposit in Doha Bank. He deposited QR 30,000 for 3 years. Finally, he got a total amount of QR 36,200. Calculate the compound annual interest rate of the deposit, if the interest is credited 2 times every year.

Activity No. 3

Faisal opened a time deposit in HSBC. He deposited QR110,000 for 30 months. Finally, he got a total interest of QR8,200. Calculate the compound annual interest rate of the deposit, if the interest is credited 3 times every year.

Activity No. 4

Khalifa opened a time deposit in Alkhalej bank. He deposited QR 50,000 for 75 weeks. Finally, he got a total amount of QR 53,900. Calculate the compound annual interest rate of the deposit, if the interest is credited 4 times every year.

Activity No. 5

Ahmed invested QAR 150,000 as a time deposit in The United Arab Bank. He got QAR 159,750 after 519 days. Calculate the compound annual interest rate of the deposit, if the interest is credited 6 times every year using the 366 exact methods.

Activity No. 6

Abdelazeez invested QAR 275,000 as a time deposit in The United Arab Bank. He got QAR 283,250 after 690 days. Calculate the compound annual interest rate of the deposit, if the interest is credited 12 times every year using the 360 ordinary methods.

Chapter Two

The Discount and Present Value Using Compound Interest

Contents

The Ordinary Discount and the Ordinary Present Value:

Activity No. *1*

The future (face) value of a debt is QAR 90,000. The repayment of the debt will be after 7 months from now @ 5% compound annual interest rate. Find the ordinary present value and ordinary discount value if the debt is repaid now.

Activity No. *2*

The future (face) value of a debt is QAR 41,800. The repayment of the debt will be after 9 months from now @ 4.25% compound annual interest rate. Find the ordinary present value and ordinary discount value if the debt is repaid now.

Activity No. 3

The future (face) value of a debt is QAR 110,000. The repayment of the debt will be after 26 weeks from now @ 3.25% compound annual interest rate. Find the ordinary present value and ordinary discount value if the debt is repaid now.

Activity No. 4

The future (face) value of a debt is QAR 168,000. The repayment of the debt will be after 42 weeks from now @ 4.50% compound annual interest rate. Find the ordinary present value and ordinary discount value if the debt is repaid now.

Activity No. 5

The future (face) value of a debt is QAR 34,000. The repayment of the debt will be after 320 days from now @ 5.50% compound annual interest rate. Find the ordinary present value and ordinary discount value if the debt is repaid now using the 360 ordinary method.

Activity No. 6

The future (face) value of a debt is QAR 81,900. The repayment of the debt will be after 170 days from now @ 6% compound annual interest rate. Find the ordinary present value and ordinary discount value if the debt is repaid now using the 360 ordinary method.

Activity No. 7

The future (face) value of a debt is QAR 29,100. The repayment of the debt will be after 330 days from now @ 7.50% compound annual interest rate. Find the ordinary present value and ordinary discount value if the debt is repaid now using the 360 ordinary method.

Activity No. 8

The future (face) value of a debt is QAR 344,000. The repayment of the debt will be after 110 days from now @ 4.50% compound annual interest rate. Find the ordinary present value and ordinary discount value if the debt is repaid now using the 360 ordinary method.

The Exact Discount and The Exact Present Value:

Activity No. *1*

The future (face) value of a debt is QAR 60,000. The repayment of the debt will be after 10 months from now @ 6% compound annual interest rate. Find the exact present value and exact discount value if the debt is repaid now.

Activity No. *2*

The future (face) value of a debt is QAR 17,500. The repayment of the debt will be after 7 months from now @ 3.75% compound annual interest rate. Find the exact present value and exact discount value if the debt is repaid now.

Activity No. 3

The future (face) value of a debt is QAR 230,000. The repayment of the debt will be after 35 weeks from now @ 5.75% compound annual interest rate. Find the exact present value and exact discount value if the debt is repaid now.

Activity No. 4

The future (face) value of a debt is QAR 172,000. The repayment of the debt will be after 48 weeks from now @ 2.50% compound annual interest rate. Find the exact present value and exact discount value if the debt is repaid now.

Activity No. 5

The future (face) value of a debt is QAR 34,000. The repayment of the debt will be after 300 days from now @ 5.50% compound annual interest rate. Find the exact present value and exact discount value if the debt is repaid now using the 365 exact method.

Activity No. 6

The future (face) value of a debt is QAR 81,900. The repayment of the debt will be after 170 days from now @ 6% compound annual interest rate. Find the exact present value and exact discount value if the debt is repaid now using the 365 exact method.

Activity No. 7

The future (face) value of a debt is QAR 29,100. The repayment of the debt will be after 330 days from now @ 7.50% compound annual interest rate. Find the exact present value and exact discount value if the debt is repaid now using the 366 exact method.

Activity No. 8

The future (face) value of a debt is QAR 344,000. The repayment of the debt will be after 110 days from now @ 4.50% compound annual interest rate. Find the exact present value and exact discount value if the debt is repaid now using the 366 exact method.

Chapter Three

Settlement of Long-Term Debts Using Compound Interest

Contents

1. Settlement Of Debts In Advance date.
2. Settlement Of Debts In a Later date.

Settlement Of Debts In Advance:

Activity No. *1*

If you know, that Hamad has the following debts. If Hamad wants to replace the last debts with a new one matures in July 2015. He will pay the debts in advance at 5% compound annual interest rate. What is the value of the new debt?

- QAR 50,000 matures in August 2017.
- QAR 70,000 matures in October 2017.
- QAR 25,000 matures in March 2018.

Activity No. *2*

If you know, that Fahd has the following debts. If Fahd wants to replace the last debts with a new one matures in September 2015. He will pay the debts in advance at 6% compound annual interest rate. What is the value of the new debt?

- QAR 20,500 matures in December 2017.
- QAR 38,300 matures in February 2017.
- QAR 48,900 matures in July 2018.

Activity No. 3

If you know, that Abdullah has the following debts. If Abdullah wants to replace the last debts with a new one matures in November 2015. He will pay the debts in advance at 4.5% compound annual interest rate. What is the value of the new debt?

- QAR 80,000 matures in April 2017.
- QAR 45,000 matures in June 2017.
- QAR 26,500 matures in October 2018.
- QAR 50,000 matures in August 2018.

Activity No. 4

If you know, that Nawaf has the following debts. If Nawaf wants to replace the last debts with a new one matures in Novmber 2016. He will pay the debts in advance at 5% compound annual interest rate. What is the value of the new debt?

- QAR 80,000 matures in April 2018.
- QAR 45,000 matures in June 2018.
- QAR 26,500 matures in October 2019.

Activity No. 5

If you know, that Turky has the following debts. If Turky wants to replace the last debts with a new one matures in July 2015. He will pay the debts in advance at 6.5% compound annual interest rate. What is the value of the new debt?

- QAR 15,400 matures in April 2018.
- QAR 29,200 matures in June 2018.
- QAR 32,700 matures in November 2018.
- QAR 32,700 matures in January 2018.
- QAR 32,700 matures in March 2018.

Activity No. 6

If you know, that Jasim has the following debts. If Jasim wants to replace the last debts with a new one matures in 16, July 2015. He will pay the debts in advance at 4.75% compound annual interest rate. What is the value of the new debt?

- QAR 35,000 matures in 24, April 2017.
- QAR 19,000 matures in 07, June 2017.
- QAR 72,000 matures in 18, November 2018.

Activity No. 7

If you know, that Mohamed has the following debts. If Mohamed wants to replace the last debts with a new one matures in 27, May 2015. He will pay the debts in advance at 7% compound annual interest rate. What is the value of the new debt?

- QAR 30,000 matures in 12, April 2017.
- QAR 30,000 matures in 02, October 2016.
- QAR 30,000 matures in 28, November 2016.
- QAR 30,000 matures in 28, June 2016.
- QAR 30,000 matures in 28, December 2017.

Activity No. 8

If you know, that Saad has the following debts. If Saad wants to replace the last debts with a new one matures in 1, September 2015. He will pay the debts in advance at 6.25% compound annual interest rate. What is the value of the new debt?

- QAR 20,000 matures in 30, August 2017.
- QAR 20,000 matures in 15, December 2017.
- QAR 20,000 matures in 09, January 2017.

Settlement of Debts in a Later Date:

Activity No. *1*

If you know, that Ali has the following debts. If Ali wants to replace the last debts with a new one matures in July 2018. He will pay the debts in a later date at 5% compound annual interest rate. What is the value of the new debt?

- QAR 50,000 matures in August 2015.
- QAR 70,000 matures in October 2015.
- QAR 25,000 matures in March 2016.

Activity No. 2

If you know, that Fahd has the following debts. If Fahd wants to replace the last debts with a new one matures in September 2017. He will pay the debts in a later date at 6% compound annual interest rate. What is the value of the new debt?

- QAR 20,500 matures in December 2015.
- QAR 38,300 matures in February 2015.
- QAR 48,900 matures in July 2016.

Activity No. 3

If you know, that Abdullah has the following debts. If Abdullah wants to replace the last debts with a new one matures in November 2019. He will pay the debts in a later date at 4.5% compound annual interest rate. What is the value of the new debt?

- QAR 80,000 matures in April 2016.
- QAR 45,000 matures in June 2016.
- QAR 26,500 matures in October 2016.

Activity No. 4

If you know, that Nawaf has the following debts. If Nawaf wants to replace the last debts with a new one matures in Novmber 2019. He will pay the debts in a later date at 5% compound annual interest rate. What is the value of the new debt?

- QAR 80,000 matures in April 2016.
- QAR 45,000 matures in June 2016.
- QAR 26,500 matures in October 2016.

Activity No. 5

If you know, that Turky has the following debts. If Turky wants to replace the last debts with a new one matures in July 2018. He will pay the debts in a later date at 6.5% compound annual interest rate. What is the value of the new debt?

- QAR 15,400 matures in April 2016.
- QAR 29,200 matures in June 2016.
- QAR 32,700 matures in November 2016.

Activity No. 6

If you know, that Khalid has the following debts. If Khalid wants to replace the last debts with a new one matures in 16, July 2020. He will pay the debts in a later date at 4.75% compound annual interest rate. What is the value of the new debt?

- QAR 35,000 matures in 24, April 2016.
- QAR 19,000 matures in 07, June 2016.
- QAR 72,000 matures in 18, November 2016.

Activity No. 7

If you know, that Jassim has the following debts. If Jassim wants to replace the last debts with a new one matures in 27, May 2022. He will pay the debts in a later date at 7% compound annual interest rate. What is the value of the new debt?

- QAR 30,000 matures in 12, April 2016.
- QAR 30,000 matures in 02, June 2016.
- QAR 30,000 matures in 28, November 2016.

Activity No. 8

If you know, that Mohamed has the following debts. If Mohamed wants to replace the last debts with a new one matures in 1, September 2018. He will pay the debts in a later date at 6.25% compound annual interest rate. What is the value of the new debt?

- QAR 20,000 matures in 30, August 2016.
- QAR 20,000 matures in 15, December 2016.
- QAR 20,000 matures in 09, January 2016.

Chapter Four

Annuities Using Compound Interest

Contents

The Future Value of Finite Ordinary Annuities:

Activity No. *1*

Abdulaziz invests a Finite Ordinary Annuity of QAR 5,000 every month with QNB. The investment period is one year. The compound annual interest rate is 5%. Calculate the future value and total interest of the annuity.

Activity No. *2*

Mohamed invests a Finite Ordinary Annuity of QAR 3,000 every month with QNB. The investment period is one year. The compound annual interest rate is 3.5%. Calculate the future value and total interest of the annuity.

Activity No. 3

Jassim invests a Finite Ordinary Annuity of QAR 8,000 every two months with QIB. The investment period is 5 years. The compound annual interest rate is 4.75%. Calculate the future value and total interest of the annuity.

Activity No. 4

Ahmad invests a Finite Ordinary Annuity of QAR 4,000 every three months with QIB. The investment period is two years. The compound annual interest rate is 3.25%. Calculate the future value and total interest of the annuity.

Activity No. 5

Mahmoud invests a Finite Ordinary Annuity of QAR 2,000 every half a year with QIB. The investment period is four years. The compound annual interest rate is 6%. Calculate the future value and total interest of the annuity.

Activity No. 6

Ali invests a Finite Ordinary Annuity of QAR 3,500 two times every with QIB. The investment period is 3 years. The compound annual interest rate is 4.75%. Calculate the future value and total interest of the annuity.

Activity No. 7

Fahd invests a Finite Ordinary Annuity of QAR 800 three times every month with IBQ. The investment period is two years. The compound annual interest rate is 3.50%. Calculate the future value and total interest of the annuity.

Activity No. 8

Fahd invests a Finite Ordinary Annuity of QAR 1200 every three months with IBQ. The investment period is three years. The compound annual interest rate is 2.50%. Calculate the future value and total interest of the annuity.

Activity No. *9*

Jassim invests a Finite Ordinary Annuity two time every month with QIB. The investment period is 5 years. The compound annual interest rate is 4.75%. The future value of the annuity at maturity is QAR 200,000. Calculate the periodical annuity.

Activity No. *10*

Rakan invests a Finite Ordinary Annuity every month with QIB. The investment period is 7 years. The compound annual interest rate is 2.25%. The future value of the annuity at maturity is QAR 75,000. Calculate the periodical annuity.

Activity No. *11*

Jassim invests a Finite Ordinary Annuity every two months with QIB. The investment period is 3 years. The compound annual interest rate is 2.75%. The future value of the annuity at maturity is QAR 150,000. Calculate the periodical annuity.

Activity No. *12*

Rakan invests a Finite Ordinary Annuity every four months with QIB. The investment period is 4 years. The compound annual interest rate is 1.25%. The future value of the annuity at maturity is QAR 125,000. Calculate the periodical annuity.

The Future Value of Finite Immediate Due Annuities:

Activity No. *1*

Abdulaziz invests a Finite Immediate Due Annuity of QAR 5,000 in the beginning of every month with QNB. The investment period is 8 years. The compound annual interest rate is 5%. Calculate the future value and total interest of the annuity.

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Activity No. *2*

Mohamed invests a Finite Immediate Due Annuity of QAR 3,000 in the beginning of every month with QNB. The investment period is 9 years. The compound annual interest rate is 3.5%. Calculate the future value and total interest of the annuity.

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Activity No. 3

Jassim invests a Finite Immediate Due Annuity of QAR 8,000 in the beginning of every two months with QIB. The investment period is 4 years. The compound annual interest rate is 4.75%. Calculate the future value and total interest of the annuity.

Activity No. 4

Ahmad invests a Finite Immediate Due Annuity of QAR 4,000 at the beginning of every three months with QIB. The investment period is two years. The compound annual interest rate is 3.25%. Calculate the future value and total interest of the annuity.

Activity No. 5

Mahmoud invests a Finite Immediate Due Annuity of QAR 2,000 at the beginning of every half a year with QIB. The investment period is 4 years. The compound annual interest rate is 6%. Calculate the future value and total interest of the annuity.

Activity No. 6

Ali invests a Finite Immediate Due Annuity of QAR 3,500 at the beginning of every quarter a year with QIB. The investment period is 6 years. The compound annual interest rate is 4.75%. Calculate the future value and total interest of the annuity.

Activity No. 7

Mahmoud invests a Finite Immediate Due Annuity of QAR 1,500 at the beginning of three times every month with QIB. The investment period is 7 years. The compound annual interest rate is 3.50%. Calculate the future value and total interest of the annuity.

Activity No. 8

Ali invests a Finite Immediate Due Annuity of QAR 6,250 at the beginning of two times every month with QIB. The investment period is 2 years. The compound annual interest rate is 2.25%. Calculate the future value and total interest of the annuity.

Activity No. *9*

Jassim invests a Finite Immediate Due Annuity every three months with QIB. The investment period is 5 years. The compound annual interest rate is 4.75%. The future value of the annuity at maturity is QAR 200,000 .Calculate the periodical annuity.

Activity No. *10*

Rakan invests a Finite Immediate Due Annuity every month with QIB. The investment period is 7 years. The compound annual interest rate is 2.25%. The future value of the annuity at maturity is QAR 75,000 .Calculate the periodical annuity.

Activity No. *11*

Jassim invests a Finite Immediate Due Annuity every six months with QIB. The investment period is 3 years. The compound annual interest rate is 2.75%. The future value of the annuity at maturity is QAR 150,000 .Calculate the periodical annuity.

Activity No. *12*

Rakan invests a Finite Immediate Due Annuity every four months with QIB. The investment period is 4 years. The compound annual interest rate is 1.25%. The future value of the annuity at maturity is QAR 125,000 .Calculate the periodical annuity.

Chapter Five

Long Term Loans Using Compound Interest

Contents

1. Repayment of Total Amount at Maturity.
2. Repayment of Total Amount Using Equally Installments..
3. Prepare the Amortization Table.

Repayment of Total Amount at Maturity:

Activity No. *1*

Abdulaziz applied for a long-term loan with QNB. The principle amount of the loan is QAR 100,000. The annual compound interest rate is 4%. Abdulaziz agreed to repay the total amount onetime at the end of one and half year. Calculate the interest and total amount of the loan.

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Activity No. *2*

Farraj applied for a long-term loan with QNB. The principle amount of the loan is QAR 65,000. The annual compound interest rate is 5.25%. Ahmad Farraj agreed to repay the total amount onetime at the end of 3 years. Calculate the interest and total amount of the loan.

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Activity No. 3

Ahmad applied for a long-term loan with QIB. The principle amount of the loan is QAR 57,000. The annual compound interest rate is 5.75%. Ahmad agreed to repay the total amount onetime at the end of 90 months. Calculate the interest and total amount of the loan.

Activity No. 4

Mohamed applied for a long-term loan with QIB. The principle amount of the loan is QAR 80,000. The annual compound interest rate is 6%. Mohamed agreed to repay the total amount onetime at the end of 50 months. Calculate the interest and total amount of the loan.

Activity No. 5

Ahmad applied for a long-term loan with QIB. The principle amount of the loan is QAR 120,000. The annual compound interest rate is 7.25%. Ahmad agreed to repay the total amount onetime at the end of 6 years. Calculate the interest and total amount of the loan.

Activity No. 6

Mohamed applied for a long-term loan with QIB.The principle amount of the loan is QAR 80,000. The annual compound interest rate is 6%. Mohamed agreed to repay the total amount onetime at the end of 8 years. Calculate the interest and total amount of the loan.

Repayment of Total Amount using Equally Installments:

Activity No. *1*

Khalid applied for a long-term personal loan with QIB. The principal amount of the loan is QAR 100,000. The annual compound interest rate is 6%. Khalid agreed to repay the total amount over 30 monthly installments paid at the end of every month. Calculate the monthly installment and prepare the amortization table for the first 4 installments.

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Amortization Schedule:

No	Balance at beginning of period	Equal Installment	Interest amount	Principal	Balance at end of period

Activity No. 2

Khalifa applied for a long-term personal loan with QIB. The Principal amount of the loan is QAR 150,000. The annual compound interest rate is 4.5%. Khalifa agreed to repay the total amount over 45 monthly installments paid at the end of every month. Calculate the monthly installment and prepare the amortization table for the first 5 installments.

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Amortization Schedule:

No	Balance at beginning of period	Equal Installment	Interest amount	Principal	Balance at end of period

Activity No. 3

Hamad applied for a long-term personal loan with QIB. The Principal amount of the loan is QAR 135,000. The annual compound interest rate is 4.25%. Hamad agreed to repay the total amount over 60 monthly installments paid at the end of every month. Calculate the monthly installment and prepare the amortization table for the first 5 installments.

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Amortization Schedule:

No	Balance at beginning of period	Equal Installment	Interest amount	Principal	Balance at end of period

Activity No. 4

Yousof applied for a long-term personal loan with QIB. The principal amount of the loan is QAR 65,000. The annual compound interest rate is 5.75%. Yousof agreed to repay the total amount over 70 monthly installments paid at the end of every month. Calculate the monthly installment and prepare the amortization table for installments 40,41,42.

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Amortization Schedule:

No	Balance at beginning of period	Equal Installment	Interest amount	Principal	Balance at end of period

Activity No. 5

Reda applied for a long-term personal loan with QCB. The principal amount of the loan is QAR 55,000. The annual compound interest rate is 6.25%. Reda agreed to repay the total amount over 44 monthly installments paid at the end of every month. Calculate the monthly installment and prepare the amortization table for installments 25,26,27.

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Amortization Schedule:

No	Balance at beginning of period	Equal Installment	Interest amount	Principal	Balance at end of period

Activity No. 6

Abdullah applied for a long-term personal loan with IBQ. The principal amount of the loan is QAR 40,000. The annual compound interest rate is 5.25%. Aballah agreed to repay the total amount over 25 monthly installments paid at the end of every month. Calculate the monthly installment and prepare the amortization table for the last four installments.

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Amortization Schedule:

No	Balance at beginning of period	Equal Installment	Interest amount	Principal	Balance at end of period

Activity No. 7

Majed applied for a long-term personal loan with QIB. The principal amount of the loan is QAR 80,000. The annual compound interest rate is 6.25%. Majed agreed to repay the total amount over 35 monthly installments paid at the end of every month. Calculate the monthly installment and prepare the amortization table for the last three installments.

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Amortization Schedule:

No	Balance at beginning of period	Equal Installment	Interest amount	Principal	Balance at end of period

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