Compound Interest

1) David invests 6000 Australian dollars (AUD) in a bank offering 6 % interest compounded annually.

(a) Calculate the amount of money he has after 10 years.

(b) David then withdraws 5000 AUD to invest in another bank offering 8 % interest compounded annually. Calculate the **total** amount he will have in both banks at the end of one more year. Give your answer correct to the nearest Australian dollar.

2) Kurt wants to invest 2000 Euros in a savings account for his new grandson.

(a) Calculate the value of Kurt's investment based on a **simple interest rate** of 4 % *per annum*, after 18 years.

Inge tells Kurt about a better account which offers interest at a rate of 3.6 % *per annum*, **compounding monthly**.

(b) Giving your answer to the nearest Euro, calculate the value of Kurt's investment after 18 years if he follows Inge's advice.

3) A family in Malaysia received a gift of AUD $ 4000 from a cousin living in Australia.

The money was converted to Malaysian Ringgit. One Ringgit can be exchanged for 0.4504 AUD.

(a) Calculate the amount of Ringgit received.

The money was invested for 2 years and 6 months at 5.2 % p.a. compounding monthly.

(b) Calculate the amount of interest earned from this investment. Give your answer to the nearest Ringgit.

4) Andrew invests 20 000 Swiss francs in a bank that offers a 2 % simple interest per year for 8 years.

(a) Find the interest he has after these 8 years.

Philip invests 20000 Swiss francs for 6 years in a bank at a nominal rate of 5 % interest **compounded quarterly**.

(b) Find the **total amount** in Philip's account after these 6 years.

Compound Interest

5) Bob invests 3000 USD in a bank that offers simple interest at a rate of 4 % per annum.

(a) Calculate the number of years that it takes for Bob's money to double. *[3 marks]*

Charles invests 3000 USD in a bank that offers compound interest at a rate of 3.5 % per annum, compounded half-yearly.

(b) Calculate the number of years that it takes for Charles's money to double. *[3 marks]*

6) Emma places € 8000 in a bank account that pays a nominal interest rate of 5 % per annum, compounded quarterly.

(a) Calculate the amount of money that Emma would have in her account after 15 years. Give your answer correct to the nearest Euro. *[3 marks]*

(b) After a period of time she decides to withdraw the money from this bank. There is € 9058.17 in her account. Find the number of months that Emma had left her money in the account. *[3 marks]*

7) Eva invests USD2000 at a nominal annual interest rate of 8 % **compounded half-yearly**.

(a) Calculate the value of her investment after 5 years, correct to the nearest dollar. *[3 marks]*

Toni invests USD1500 at an annual interest rate of 7.8 % **compounded yearly**.

(b) Find the number of **complete** years it will take for his investment to double in value. *[3 marks]*

8) An amount, C, of Australian Dollars (AUD) is invested for 5 years at 2.5 % yearly simple interest. The interest earned on this investment is 446.25 AUD.

(a) Calculate the value of C. *[2 marks]*

5000 AUD is invested at a nominal annual interest rate of 2.5 % **compounded half yearly**.

(b) Calculate the length of time in years for the interest on this investment to exceed 446.25 AUD. *[4 marks]*