TD1 Interest rates

Exercice 1. How many days does it take for 1450$ to accumulate to 1500$ under 4% p.a. simple interest ?

Exercice 2. How long does it take to double your capital if you put it in an account paying compound interest at a rate of 7.5% ? What if the account pays simple interest ?

Exercice 3. What is the simple interest rate per annum which is equivalent to a nominal rate of 9% compounded six-monthly, if the money is invested for 3 years ?

Exercice 4. Suppose I have the opportunity to invest 1 dollar in Bank A which pays 5% interest compounded monthly. What interest rate does Bank B have to pay, compounded daily, to provide an equivalent investment ?

Exercice 5. An insurance company has to pay 20 million 4 years from now to pensioners. Suppose that it can invest money at an annual rate of 7% compounded semiannually. How much it must invest today ?

Exercice 6. An investor invests and withdraws the following amounts in a savings account at the stated times

date	investment	withdrawal
1 april 2000	1500	
1 april 2001		1000
1 april 2002	1800	
1 april 2003	1500	

Between 1 April 2000 and 1 April 2001, the account paid nominal 6% per annum convertible quarterly. Between 1 April 2001 and 1 October 2002, the account paid 5% per annum effective. From 1 October 2002, the account paid 4% per annum effective. Interest is added to the account after close of business on 31 March each year. Find the accumulated amount at 1 October 2003.