MCR 3UI Name:

Simple & Compound Interest – Homework

1. You invest $250 at 4%/a at a bank that pays simple interest.
   a) How much simple interest would be earned each year?
   b) If you kept your money invested for 8 years, how much total simple interest would be earned?
   c) How much money would be in your bank account after the 8 years if you did not withdraw any money?

2. You decide to invest $500. Determine the **future amount** of your investment after five years if the account pays:
   a) 4%/a simple interest
   b) 4%/a compounded annually
   c) Which account is worth more? By how much?

3. You purchase a term bond for $100 that pays 7%/a simple interest.
   a) Determine the interest earned after:
      i) after 6 months ii) after 1 year iii) after 2 years
   b) Does doubling the length of time for the investment double the interest earned?
   c) Suppose the bond pays 14%/a simple interest. Determine the interest earned on this bond after 6 months.
   d) Does doubling the interest rate double the amount of interest earned?

4. Determine the future amount of each investment and the amount of interest earned.
   a) $2500 invested for 7 years at 10%/a, compounded semi-annually
   b) $900 invested for 6.5 years at 8%/a, compounded quarterly
   c) $15 000 invested for 18 months at 6%/a, compounded monthly

5. Suppose you invest $3000 at 4%/a, compounded quarterly.
   a) Determine the amount of interest earned after:
      i) 6 months ii) one year iii) two years
   b) Does doubling the length of time for the investment double the interest earned?
   c) Calculate the amount of interest earned if you invest $3000 at 8%/a, compounded quarterly for one year.
   d) Does doubling the interest rate double the amount of interest earned?

6. You inherit $20 000 on your 18^{th} birthday. Instead of spending it, you decide to invest the money in an account which pays 9%/a, compounded monthly. What is your investment worth on your 50^{th} birthday?

Answers:

1.	a) $10	b) $80	c) $330
2.	a) $600	b) $608.33	c) compound investment by $8.33
3.	a)i) $3.50	ii) $7.00	iii) $14.00
	b)yes	c) $7.00	d) yes
4.	a) $4949.83	b) $1506.08	c) $16 408.93
5.	a)i) $60.30	ii) $121.81	iii) $248.57
	b) no	c) $247.30	d) no
6.	$352 477.21		