8.1 – Simple Interest Questions

1. Calculate the amount of interest earned if $1500 is invested for 13 years at 3.5% simple interest.

2. Calculate the simple interest rate if $120 was earned after investing $600 for 5 years.

3. Steve needs a total of $7500. He has $5000 and can earn 10% simple interest. How many years will it take Steve to achieve his goal?

4. Susan deposits $3500 into a savings account earning 5.5% simple interest.
a) By how much does the amount increase each year?

b) Determine the amount in her account at the end of each of the first 5 years.

5. **Research:** Is simple interest used in the real world?

8.2 –Compound Interest: Future Value Questions

1. Complete the table:

Rate of Compound Interest per year	Compounding Period	Time	Interest Rate per Compounding Period, i	Number of Compounding Periods, n
5.4%	semi-annually	5 years		
3.6%	monthly	3 years		
2.9%	quarterly	7 years		
2.6%	weekly	10 months		

2. For each investment, determine the future value and the total interest earned:
a) $4000 invested at 3%/a compounded annually for 4 years.

b) $7500 invested at 6%/a compounded monthly for 6 years.

c) $15000 invested at 2.4%/a compounded quarterly for 8.5 years.

3. Chris invests $10,000 at 7.2%/a compounded monthly. How long will it take for his investment to grow to $25,000?

4. Charlotte deposits $9000 into an account that pays 10%/a compounded quarterly. After three years, the interest changes to 9%/a compounded semi-annually. Calculate the value of her investment 4 years after the change.

8.3 – Compound Interest: Present Value Questions

1. Calculate the present value and interest earned for each investment
a) 6%/a compounded annually for 4 years, with the future value being $10,000

b) 5.6%/a compounded quarterly for 15 years, with the future value being $20,000

2. Elaine can invest money at 5%/a compounded monthly. She would like $15,000 in 10 years. How much does she need to invest today?

3. Frank saved $900 to buy a TV and surround sound system. He paid for the remainder using the store's credit card at a rate of 18%/a compounded monthly. Two years later, Frank paid $1429.50 for the principal and interest. How much did his TV and surround system cost?

4. Tina is investing $2500 that she would like to grow to $6000 in 10 years. At what annual interest rate, compounded quarterly, must Melanie invest her money?

8.4 – Annuities: Future Value Questions

1. Calculate the future value of each annuity:
a) $100 per month for 50 years at 3.6%/a compounded monthly

b) $500 every 3 months for 8 years at 5.6%/a compounded quarterly

2. Jane invests $650 every 6 months at 4.6%/a compounded semi-annually for 25 years. What is the future value of this annuity and how much interest did she earn?

3. Matthew wants to invest money every month for 40 years. He would like to have $1,000,000 at the end of 40 years. If he earns 3.6%/a compounded monthly, how much does he need to invest each month?

4. Lorraine wants to invest $250 every three months at 8%/a compounded quarterly. She would like to have at least $6500 at the end of her investment. How long will Lorraine need to make regular payments?

8.5 – Annuities: Present Value Questions

1. Calculate the present value of each annuity:

a) $5000 payment every year at 7.2%/a compounded annually for 5 years

b) $750 payment every three months at 8%/a compounded quarterly for 2.5 years

2. You want to buy the latest iPhone (or other favourite cellular device) using store credit. The device is $650 and the store charges 15%/a compounded monthly. If you plan on paying it off in two years, what will your monthly payments be? How much interest did you pay over the 2 years?

3. Jim buys a car by paying $300 a month at a rate of 5%/a compounded monthly for three years. How much did Jim buy the car for and how much interest did he pay over the 3 years?

Bonus:

4. Lisa calculates that she will require $2500 per month for the first 15 years of her retirement. If she has 25 years until she retires, how much should she invest each month at 9%/a compounded monthly for the next 25 years if she plans to withdraw $2500 each month for 15 years after using the same rate?