SIMPLE INTEREST

(1) Calculate the amount that £2500 will become, if it is invested for 4 years at 6% per annum **simple interest.**

interest per year = $0.06 \times 2500 = £150$ per year

over 4 years interest = $4 \times 150 = £600$

So after 4 years = $2500 + 600 = £3100$

[3]

(2) *(a)* Harold invests £850 at 8% p.a. simple interest. Calculate the total amount of money he has at the end of three years.

interest per year = $0.08 \times 850 = £68$ per year

after 3 years interest = $3 \times £68 = £204$

So amount of money = $850 + 204 = £1054$

[3]

COMPOUND INTEREST

(3) Calculate, to the nearest penny, the compound interest earned when £800 is invested for 3 years at 6% per annum.

YR1: interest earned $0.06 \times 800 = £48$

at end of yr1 $800 + 48 = £848$

YR2: Interest earned $0.06 \times 848 = £50.88$

at end of yr2 $848 + 50.88 = £898.88$

YR3: Interest earned $0.06 \times 898.88 = £53.93$

at end of yr3 $898.88 + 53.93 = £952.81$

[4]

(4) A building society offers a compound interest rate of 4% payable every six months.

(a) Jenny invests £100 in the building society. How much money does she have at the end of one year?

end of 1st six months   interest $0.04 \times 100 = £4$

end of six months $100 + 4 = £104$

end of 2nd six months   interest $0.04 \times 104 = £4.16$

end of one year $104 + 4.16 = £108.16$

[2]

(5) Susan invests £1500 in an account for 3 years at 8% per annum **compound** interest. Calculate the total amount in the account at the end of the three years. Give your answer correct to the nearest penny.

Yr1: Interest 0.08 × 1500 = £120
at end of yr1 1500 + 120 = £1620

Yr2: interest 0.08 × 1620 = £129.60
at end of yr2 1620 + 129.60 = £1749.60

Yr3: interest 0.08 × 1749.60 = £139.97
at end of yr3 1749.60 + 139.97 = £1889.57

[4]

COMPOUND DEPRICIATION

(6) A business declares that its office equipment depreciates at the rate of 15% of its value at the beginning of each year. Find, to the nearest £100, the value of its office equipment at the end of 3 years of depreciation, if its value at the beginning of the period was £20 000.

Yr1 loses loses 0.15 × 20 000 = £3000
after 1 yr worth 20000 - 3000 = £17 000

Yr2 loses 0.15 × 17000 = £2550
after 2yrs worth 17 000 - 2550 = £14 450

Yr3 lose 0.15 × 14450 = £2167.50
after 3 yrs worth 14450 - 2167.50 = £12 282.50
= £12 300

[4]

(7) Three years ago a car was bought for £8000. Each year the car's value depreciates by 12% of its value at the start of that year. Calculate how much the car is worth today.

Yr 1 :   0.12 × 8000 = £960
         worth 8000 - 960 = £7040

Yr 2 : loses 0.12 × 7040 = £844.80
        worth 7040 - 844.80 = £6195.20

Yr 3 : loses 0.12 × 6195.20 = £743.42
        worth 6195.20 - 743.42 = £5451.78

[3]

(8) Every year, an item of furniture depreciates by 15% of its value at the start of that year. An item of furniture is bought for £3000. How much will it be worth in 3 years time?

Yr 1 loses 0.15 × 3000 = £450
      worth 3000 - 450 = £2550

Yr 2 loses 0.15 × 2550 = £382.50
      worth = 2550 - 382.50 = £2167.50

Yr 3 loss 0.15 × 2167.50 = £325.13
      worth : 2167.50 - 325.13 = £1842.37

[3]