Interest

(Simple and Compounds)

$$I = \frac{PRT}{100}$$

I = Interest
P = Principal
R = Rate of interest
T = Time left for

Exercise 25

1. Calculate: P T R
   a) the simple interest on $1200 for 3 years at 6% per annum
   b) the simple interest on $700 at 8.25% per annum for 2 years
   c) the length of time for $5000 to earn $1000 if invested at 10% per annum
   d) the length of time for $400 to earn $160 if invested at 8% per annum.
2. Khalid invests $6750 at 8.5% per annum. How much interest has he earned and what is the total amount in his account after 4 years?
3. Petra invests $10 800. After 4 years she has earned $3240 in interest. At what annual rate of interest did she invest her money?

(1a) $I = \frac{PRT}{100} \Rightarrow I = \frac{1200 \times 6 \times 3}{100}$

$= \$216$

(b) $I = \frac{700 \times 8.25 \times 2}{100}$

$= 7 \times 16.5$

$= \$115.50$

(c) $I = \frac{PRT}{100}$

$1000 = \frac{5000 \times 10 \times T}{100}$

$\frac{1000}{500} = T$

$T = 2$

(d) $I = \frac{PRT}{100} \Rightarrow 160 = \frac{400 \times 8 \times n}{100}$

$\frac{160}{32} = n$

$n = 5$ years

Q52) $I = \frac{6750 \times 8 \times 4}{100}$

$I = \$2295$

$T.P = \$9045$

Compound Interest

$$P\left(\frac{100+R}{100}\right)^T$$

P = Principal
R = Rate p.a
T = No. of years

Exercise 26 : Compound interest

1. A bank pays interest of 9% on money in deposit accounts. Carme puts $2000 in the bank. How much has she after **a)** one year, **b)** two years, **c)** three years?
2. A bank pays interest of 11%. Mamuru puts $5000 in the bank. How much has he after **a)** one year, **b)** three years, **c)** five years?
3. A student gets a grant of $10 000 a year. Assuming her grant is increased by 7% each year, what will her grant be in four years time?

1.

(a) $P\left(\frac{100+R}{100}\right)^T$

$2000\left(\frac{100+9}{100}\right)^1$

$\$2180$

(b) $2000\left(\frac{100+9}{100}\right)^2$

$= \$2376.20$

(c) $2000\left(\frac{109}{100}\right)^3$

$= \$2590.05$

2) (a) $P\left(\frac{100+R}{100}\right)^T$

$5000\left(\frac{111}{100}\right)^2$

$=\$5550$

(b) $5000\left(\frac{111}{100}\right)^3$

$=\$6,838.16$

(c) $5000\left(\frac{111}{100}\right)^5$

$\$8425.29$

Q3) $10000\left(\frac{100+7}{100}\right)^4$

$10000\left(\frac{107}{100}\right)^4$ → $\$13,107.96$

Currency Conversions

1. A money exchanger exchanged Thai baht (B) and US dollars (US$) at a rate of 34.77B = US$1.
   (a) Calculate, in Thai baht, the amount received for US$150.
   (b) Calculate, in US$, the amount received for 1617B.

(a)

$	B
1	34.77 B
150	x

$x = 5,215.5$

(b)

$	B
1	34.47
x	1617

$x = 46.51$

$x = \$46.51$

2. The exchange rate between the Sterling pound (£) and the euro (€) during a particular day was £1 to €1.19.

(a) How many Euros would be equivalent to £320?

(b) How many pounds would be equivalent to €956?

(a)

£	€
1	1.19
320	x

$x = €380.8$

(b)

£	€
1	1.19
x	956

$x = £803.36$

6. A couple travels from New Zealand to Singapore for a holiday to celebrate their Silver Jubilee wedding anniversary. They exchange NZ$3200 to Singapore dollars at a rate of NZ$100 = S$94.85. They spend a total of S$2560.20 in Singapore and convert the remaining Singapore dollars into New Zealand dollars at the end of the trip at a rate of NZ$100 = S$97.65. Find the amount of New Zealand dollars they receive, giving your answer correct to the nearest cent.

NZ$	S$
100	94.85
3200	x

$x = S\$3035.2$

$3035.2 - 2560.2 = S\$475$

NZ$	S$
100	97.65
x	475

$x = NZ\$486.43$