



CAMI Mathematics: Grade 10

Grade 10 CAPS Curriculum

10.3 Finance and growth

1.1 Simple interest.

- (a) R2 750 invested at $r\%$ p.a. simple interest amounts to R5 885 in 19 years. Find r .
- (b) R8 000 at 7.75% simple interest p.a. yields R16 060. Find n .
- (c) Calculate the simple interest on R4 500 at 9% interest per year for 4 years.
- (d) Calculate the simple interest on R5 750 at 7.5% interest per year for 10,5 years.
- (e) Calculate the simple interest on R10 500 at 6.25% interest per year for 12 years.

1.2 Compound interest.

- (a) The initial amount of an investment was R41746.40, and in 9 years it increased to R132023.53. Calculate the interest rate if the interest was compounded annually.
- (b) After 3 years, an investment increased to R61 886.87. If the interest rate was 5.5% per annum, compounded annually, calculate the amount initially invested.
- (c) The initial amount of an investment was R44561.90, and in 9 years it was increased to R149171.36. Calculate the interest rate if the interest was compounded annually.
- (d) Calculate the compound interest on a loan of R62722.80 over 5 years at 14.75% interest, compounded quarterly.
- (e) Calculate the compound interest on a loan of R81 828.80 over 4 years at 13% interest, compounded biannually.
- (f) Calculate the compound interest on a loan of R22475.20 over 2 years at 6% interest, compounded monthly.



CAMI Mathematics: Grade 10

MEMO

1.1 Simple interest. [10.7.1.3; 10.7.1.4; 10.7.1.5]

(a)

$$A = P(1 + i.n)$$

$$R5885 = R2750(1 + 19.i)$$

$$\frac{R5885}{R2750} = 1 + 19.i$$

$$\frac{R5885}{R2750} - 1 = 19.i$$

$$\therefore i = 0.06$$

$$\therefore r = 6\%$$

(b)

$$A = P(1 + i.n)$$

$$R16060 = R8000(1 + 7.75\%.n)$$

$$\frac{R16060}{R8000} = 1 + 0.0775n$$

$$\frac{R16060}{R8000} - 1 = 0.0775n$$

$$\therefore n = 13$$

(c)

$$A = P(1 + i.n)$$

$$A = R4500(1 + (9\%)(4))$$

$$A = R4500(1 + 0.36)$$

$$A = R6120$$

$$\text{Interest} = R6120 - R4500 = R1620$$

(d)

$$A = P(1 + i.n)$$

$$A = R5750(1 + (7.5\%)(10.5))$$

$$A = R5750(1 + 0.7875)$$

$$A = R10278.13$$

$$\text{Interest} = R10278.13 - R5750 = R4528.13$$



CAMI Mathematics: Grade 10

(e)

$$A = P(1 + i.n)$$

$$A = R10500(1 + (6.25\%)(12))$$

$$A = R10500(1 + 0.75)$$

$$A = R18375$$

$$\text{Interest} = R18375 - R10500 = R7875$$

1.2 Compound interest. [10.7.2.5; 10.7.2.6]

(a)

$$A = P(1 + i)^n$$

$$R132023.53 = R41746.40(1 + i)^9$$

$$\frac{R132023.53}{R41746.40} = (1 + i)^9$$

$$\sqrt[9]{\frac{R132023.53}{R41746.40}} = 1 + i$$

$$\sqrt[9]{\frac{R132023.53}{R41746.40}} - 1 = i$$

$$\therefore i = 0.13647\dots$$

$$\therefore r = 13.65\%$$

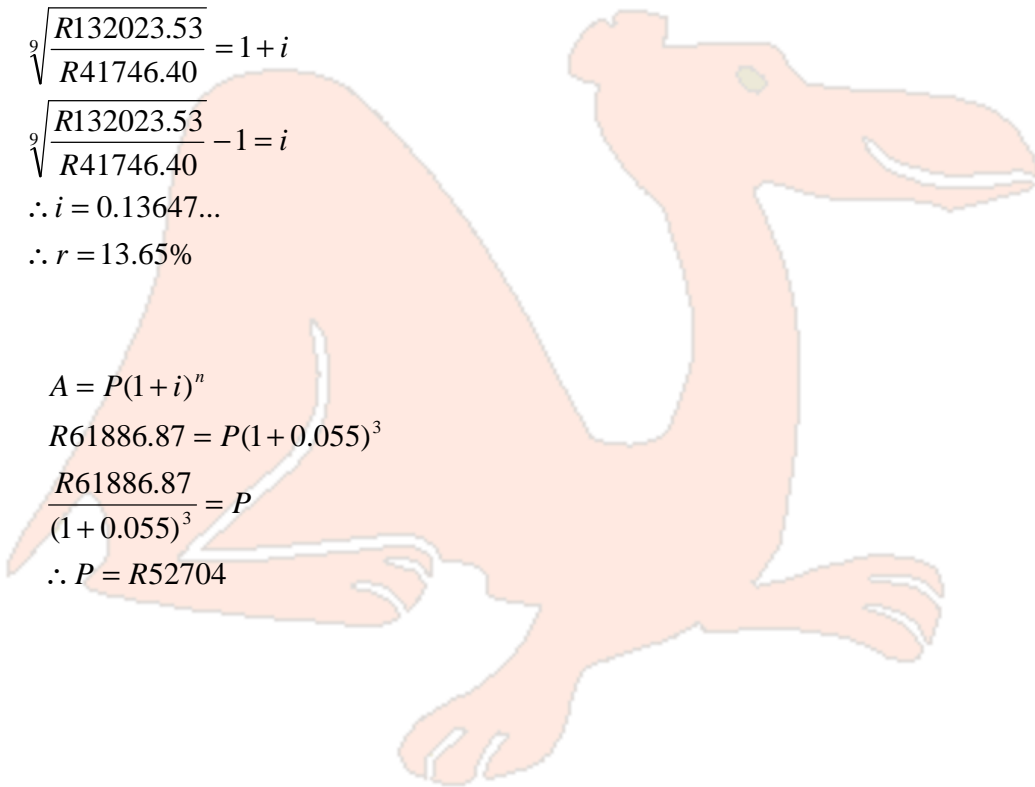
(b)

$$A = P(1 + i)^n$$

$$R61886.87 = P(1 + 0.055)^3$$

$$\frac{R61886.87}{(1 + 0.055)^3} = P$$

$$\therefore P = R52704$$





CAMI Mathematics: Grade 10

(c)

$$A = P(1+i)^n$$

$$R149171.36 = P44561.90(1+i)^9$$

$$\frac{R149171.36}{R44561.90} = (1+i)^9$$

$$\sqrt[9]{\frac{149171.36}{44561.90}} = 1+i$$

$$\sqrt[9]{\frac{149171.36}{44561.90}} - 1 = i$$

$$\therefore i = 0.14367\dots$$

$$\therefore r = 14.37\%$$

(d)

$$A = P(1+i)^n$$

$$A = R62722.80\left(1 + \frac{0.1475}{4}\right)^{20}$$

$$A = R129405.73$$

$$\text{Interest} = R129405.73 - R62722.80 = R66682.93$$

(e)

$$A = P(1+i)^n$$

$$A = R81828.80\left(1 + \frac{0.13}{2}\right)^8$$

$$A = R135426.31$$

$$\text{Interest} = R135426.31 - R81828.80 = R53597.51$$

(f)

$$A = P(1+i)^n$$

$$A = R22475.20\left(1 + \frac{0.06}{12}\right)^{24}$$

$$A = R25333.14$$

$$\text{Interest} = R25333.14 - R22475.20 = R2857.94$$