# CALCULATOR TRICKS FOR COMPOUND INTEREST

First remember this it is useful for all sums

1) If rate of interest is compounded YEARLY

then $\frac{r}{100} + 1$

2) If rate of interest is compounded HALF YEARLY OR SEMI ANNUALY

then $\frac{r}{200} + 1$

3) If rate of interest is compounded QUARTERLY

then $\frac{r}{400} + 1$

4) If rate of interest is compounded MONTHLY

then $\frac{r}{1200} + 1$

# TRICK 1

Compound Interest is given we have to find Simple Interest

Step 1: $\frac{r}{100} + 1$ (you have to see that r and quarterly, or yearly, or semi annually, or monthly) and apply

Step 2: then See 'n' in the question and get 'n' in this form after getting that

eg (If n = 5 years Compounded quarterly then) $n = 5 \times 4 = 20$

Press $\times$ = 20 times

If you press $\times$ = 1 time then it is 2 times so press 19 times

Quarterly = 4 n
monthly = 12 n
yearly = just n
half yearly = 2n

Step 3 ~~Then~~ Then Press $-1$

Step 4 Press M+

Step 5 take the number on calci

Step 6 Press $\div$ Rec 2 times

Step 7: $\times r \times n$

Step 8 $\div 100$

(Try Sum in mode. you will get the answer

TRICK 2

## Effective rate of Interest

Step 1 $\frac{r}{100} + 1$ ( 'r' and quarterly or monthly or half yearly and apply )

Step 2: Press $x =$ as many number times as n

(eg: ~~[redacted]~~ compounded half yearly

so n = 2

quarterly n = 4

yearly n = 1

monthly n = 12

Step 3: Press $-1$

Step 4: $\times 100$

you will get the answer by multiplying.

TRICK 3 — To Find Future value of Annuity

Step 1: $\frac{r}{100} + 1$ ( r and quarterly, half-yearly, monthly based on question

Step 2: Press X =

n number of times (eg: n = 7 years Compounded quarterly so n = 7 × 4, n = 28, press X = 27 time

If you press X = once then it is twice

Step 3: Press −1

Step 4: Press ÷ r

Step 5: Press X 100 [or] 200 [or] 400 [or] 1200 (based on quarterly, monthly, or half yearly or yearly

Step 6: Press × A

A = Amount

Trick 4: To find present value of Annuity

Step 1: $\frac{r}{100} + 1$ (based on Question)

Step 2: Press ÷ =

as n number of times

Step 3: M+

Step 4: × A

(Refer Trick 3 to know these)

↑ n

apply same procedure to find

↓ n

but here it is ÷ =)

(If u dont get this I have another way

In question if given $(1.06)^{-10} = 0.5584$

then just take this → A = 1000 Given in Question

Step 1 → Press 1 − that number

Step 2: ÷ r in decimals

Step 3: × A

Step 1: 1 − 0.5584 = 0.4416

Step 2: 0.4416 ÷ 6 ≈ 0.06 = 7.36

Step 3: ×1000 = 7036

Trick 5 | Simple Interest is given and find Compound Interest

Step 1 Take the number

Step 2 ÷ (r × n) %

Step 3 M+

Step 4 $\frac{r}{100}$ + 1 (based on question)

Step 5 Press × as a number of times (Refer Trick 3)

Step 6 Press × MRC button 2 times

Answer will come.

TRICK 6) If the difference b/w CI and SI when n = 2 years only when n = 2 years

Step 1: Take the difference

Step 2 Diff ÷ $r^2$

Step 3 Diff × 10,000 (or) $100^2$

you will get the answer.

If the difference b/w CI and SI when n = 3 or more years

Step 1 Difference × $100^3$

Step 2 Diff ÷ $r^2(300 + r)$

eg: Diff CI & SI 3 years at 3 years at 6% p.a Amount to 13.7

$$\frac{13.77 \times (100)^3}{6^2(300+6)}$$

$$= \underline{\underline{1250}}$$

Trick 7 — Find effective life of machine

$$\frac{\log \frac{\text{Scrap value}}{\text{Cost}}}{\log 1 - r}$$

How to find log

Step 1 — Take the number

Press $\sqrt{}$ 13 times

Step 2 — $-1$

Step 3 — $\times$ 3558

You will get the log value

take only four digits after 0.

# FORMULAES & SHORT TRICKS (MATHS) :-

I. 1. Future Value of Annuity = Annuity (A) $\times \left(\frac{(1+r)^n - 1}{r}\right)$

2. Present Value of Annuity = Annuity (A) × PVIFA @ r% for n years.

PVIFA = Present Value Interest Factor Annuity @ r%. for n years

PVIFA = $\frac{1}{1+r}$ then press equal to & then M+ for n years after MRC.

3. Present Value of Annuity = $A \times \left[\frac{(1+r)^n - 1}{r \times (1+r)^n}\right]$

NOTE :- (i). When we multiple the same no. in calci, there is one power extra.

(ii). But in PVIFA, there is two power extra.

4. Future Value (i). $(1+i) \times 1$ (n-1) times^ then press GT 1+1 (For In the end)

(ii). $(1+i) \times n$ times^ then press GT (In beginning / today)

Present value (iii). $(1 \div (1+i)$ then press equal to for n times then GT. (In the end)

(iv). $1 \div (1+i)$ then press equal to for n times then GT+1 (In beginning / today)

5. Compound Interest :-

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

P = Principal, A = Amount

- CI = Amount - Principal

(OR)

- $CI = P\{(1+i)^n - 1\}$.

6. Simple Interest :-

$SI = P \times R \times T$

$A = P + SI$

(OR)

SI = A - P.

⇒ Annuity end of regular

$(1+i)^{n-1} \times 1 = CVT + 1$ Sinking fund