SSC CGL Formulas and Tricks

NUMBER SYSTEM

```
1 + 2 + 3 + ... + n = n(n + 1)/2
```

Explanation: *Sum of first n natural numbers.*

How to Identify: Sequence starts at 1 and increases by 1 each time.

NUMBER SYSTEM

```
(1^2 + 2^2 + 3^2 + ... + n^2) = n(n + 1)(2n + 1)/6
```

Explanation: *Sum of squares of first n natural numbers.*

How to Identify: Terms are squared and in a sequence.

NUMBER SYSTEM

```
(1^3 + 2^3 + 3^3 + ... + n^3) = (n(n + 1)/2)^2
```

Explanation: *Sum of cubes of first n natural numbers.*

How to Identify: Terms are cubed and in a sequence.

NUMBER SYSTEM

```
Sum of first n odd numbers = n^2
```

Explanation: *Quick sum for series like 1, 3, 5...*

How to Identify: Sequence of odd numbers starting from 1.

NUMBER SYSTEM

```
Sum of first n even numbers = n(n + 1)
```

Explanation: *Quick sum for series like 2, 4, 6...*

How to Identify: Sequence of even numbers starting from 2.

NUMBER SYSTEM

```
(a + b)(a - b) = (a^2 - b^2)
```

Explanation: *Difference of squares identity.*

How to Identify: Product of sum and difference of two same terms.

NUMBER SYSTEM

```
(a + b)^2 = (a^2 + b^2 + 2ab)
```

Explanation: *Square of a sum identity.*

How to Identify: A binomial term being squared.

NUMBER SYSTEM

```
(a - b)^2 = (a^2 + b^2 - 2ab)
```

Explanation: *Square of a difference identity.*

How to Identify: Difference of two terms being squared.

NUMBER SYSTEM

```
(a + b + c)^2 = a^2 + b^2 + c^2 + 2(ab + bc + ca)
```

Explanation: *Expansion of a trinomial squared.*

How to Identify: Three terms being squared together.

NUMBER SYSTEM

```
(a^3 + b^3) = (a + b)(a^2 - ab + b^2)
```

Explanation: *Factoring sum of cubes.*

How to Identify: Sum of two cubed terms.

NUMBER SYSTEM

```
(a^3 - b^3) = (a - b)(a^2 + ab + b^2)
```

Explanation: *Factoring difference of cubes.*

How to Identify: Difference of two cubed terms.

NUMBER SYSTEM

$$(a^3 + b^3 + c^3 - 3abc) = (a + b + c)(a^2 + b^2 + c^2 - ab - bc - ac)$$

Explanation: General cubic identity.

How to Identify: Large cubic terms involving three variables.

NUMBER SYSTEM

$$\text{If } a + b + c = 0, \text{ then } a^3 + b^3 + c^3 = 3abc$$

Explanation: Shortcut for cubic sums.

How to Identify: Sum of the three base numbers is zero (e.g., 25, -15, -10).

NUMBER SYSTEM

$$(a + b)^n = a^n + (nC1)a^{n-1}b + ... + b^n$$

Explanation: Binomial expansion.

How to Identify: A binomial raised to a higher power n.

HCF AND LCM

$$\text{Product (ab)} = \text{HCF} * \text{LCM}$$

Explanation: Relates two numbers to their HCF and LCM.

How to Identify: Problem involves two numbers and their HCF/LCM.

HCF AND LCM

$$abc \mathrel{!=} \text{HCF} * \text{LCM}$$

Explanation: Note that product rule fails for 3+ numbers.

How to Identify: Problem involves three or more numbers.

HCF AND LCM

$$\text{HCF of fractions} = \frac{\text{HCF of Num}}{\text{LCM of Den}}$$

Explanation: Formula for fraction HCF.

How to Identify: Finding common divisor for a set of fractions.

HCF AND LCM

LCM of fractions = (LCM of Num)/(HCF of Den)

Explanation: *Formula for fraction LCM.*

How to Identify: Finding least common multiple for a set of fractions.

HCF AND LCM

d = am + bn

Explanation: *HCF d as linear combination.*

How to Identify: Theoretical number system questions or remainder rules.

HCF AND LCM

Co-primes: HCF = 1

Explanation: *Definition of co-prime numbers.*

How to Identify: Checking if two numbers have any common factors besides 1.

HCF AND LCM

HCF always divides LCM

Explanation: *Rule about the relationship of HCF/LCM.*

How to Identify: Questions asking if certain HCF/LCM pairs are possible.

HCF AND LCM

Method 1: Prime Factors

Explanation: *Find common prime factors.*

How to Identify: Small to medium numbers that are easy to factorize.

HCF AND LCM

Method 2: Division Method

Explanation: *Successive division until remainder is 0.*

How to Identify: Medium to large numbers.

HCF AND LCM

Method 3: Large Numbers HCF

Explanation: *Remove obvious common factors first.*

How to Identify: Very large numbers; look for obvious factors like 2, 3, 5, 9.

SIMPLIFICATION

BODMAS Rule

Explanation: *Order: Brackets, Of, Div, Mult, Add, Sub.*

How to Identify: Long expressions with mixed operators.

SIMPLIFICATION

Modulus: |a| = a if a>0, -a if a<0

Explanation: *Absolute value rule.*

How to Identify: Vertical bars | | around numbers or expressions.

SIMPLIFICATION

Vinculum (Bar)

Explanation: *Solve expression under the bar first.*

How to Identify: Horizontal bar over numbers within an equation.

ROOTS

Duplex a = a^2

Explanation: *Duplex for single digit.*

How to Identify: Square calculation starting from the left-most digit.

ROOTS

Duplex ab = 2(ab)

Explanation: Duplex for two digits.

How to Identify: Cross-multiplying during squaring process.

ROOTS

Duplex abc = 2(ac) + b^2

Explanation: Duplex for three digits.

How to Identify: Squaring three-digit numbers instantly.

ROOTS

Duplex abcd = 2(ad) + 2(bc)

Explanation: Duplex for four digits.

How to Identify: Squaring four-digit numbers efficiently.

ROOTS

Cube Layout Method (e.g. 16^3)

Explanation: Write a | b | b^2 | b^3 and double middle.

How to Identify: Numbers between 11-19; easy pattern for cubes.

AGES

nx

Explanation: n times the current age x.

How to Identify: Phrases like 'thrice his age' or 'five times'.

AGES

x + n

Explanation: Age n years later/hence.

How to Identify: Phrases like '5 years hence' or 'after 10 years'.

AGES

```
x - n
```

Explanation: *Age n years ago.*

How to Identify: Phrases like '7 years ago' or 'in the past'.

AGES

```
ax and bx
```

Explanation: *Ages in a ratio a:b.*

How to Identify: Ratio is provided (e.g., ages of A and B are 4:5).

AGES

```
x/n
```

Explanation: *1/n times the age.*

How to Identify: Phrases like 'one-fourth of his age'.

AGES

```
Son's Age = t1(x-1)/(x-y)
```

Explanation: *Past times x, Present times y.*

How to Identify: Problem gives past multiple and present multiple.

AGES

```
Son's Age = (z-1)t1/(y-z)
```

Explanation: *Present times y, Future times z.*

How to Identify: Problem gives present multiple and future multiple.

AGES

```
Son's Age = [(z-1)t2 + (x-1)t1]/(x-z)
```

Explanation: *Past times x, Future times z.*

How to Identify: Problem gives past multiple and future multiple.

AGES

Son/Daughter Age = [Total +/- Years(Times-1)]/(Times+1)

Explanation: *Calculating age from total sum.*

How to Identify: Problem mentions 'sum of ages' and a past/future multiple.

AGES

Cross Product Method

Explanation: *Ratio a:b vs x:y after T years.*

How to Identify: Two ratios given at different time points.

AVERAGE

Average = (Total)/(No. of data)

Explanation: *Basic average formula.*

How to Identify: Standard average calculation requested.

AVERAGE

New Entrant Age = New Avg + Old Members * Increase

Explanation: *Shortcut for new member joining.*

How to Identify: A person joins and average increases.

AVERAGE

Replacement Wt = Removed Wt + Count * Increase

Explanation: *Shortcut for replacing a person.*

How to Identify: One person leaves and another joins.

AVERAGE

```
Passed Cand = Total * (Total Avg - Fail Avg)/(Pass Avg - Fail
Avg)
```

Explanation: *Alligation-based shortcut.*

How to Identify: Given total candidates and separate pass/fail averages.

AVERAGE

```
Failed Cand = Total * (Pass Avg - Total Avg)/(Pass Avg - Fail
Avg)
```

Explanation: *Alligation-based shortcut.*

How to Identify: Given total candidates and separate pass/fail averages.

AVERAGE

```
Avg after x innings = Total - Incr * y innings
```

Explanation: *Cricket batting average shortcut.*

How to Identify: Average change after a specific inning score.

AVERAGE

```
Avg Speed = 2xy/(x+y)
```

Explanation: *For two equal distances.*

How to Identify: Same distance covered at two different speeds.

AVERAGE

```
Avg Speed = 3xyz/(xy+yz+zx)
```

Explanation: *For three equal distances.*

How to Identify: Three equal segments covered at different speeds.

AVERAGE

```
Original Exp = N * [x(N+z) + y]/z
```

Explanation: *Shortcut for group expenditure changes.*

How to Identify: Number of students increases, total expense increases, but avg drops.

PERCENTAGE

```
Value / Total Value * 100
```

Explanation: *Basic percentage formula.*

How to Identify: Finding percent representation of a part.

PERCENTAGE

```
(100+x)/(100+y) * 100%
```

Explanation: *Comparing two values based on a third.*

How to Identify: A and B are x% and y% more than C.

PERCENTAGE

```
Initial = (A*100^3) / (100-x)(100-y)(100-z)
```

Explanation: *Successive deductions.*

How to Identify: Deductions like 'x% spent, then y% of remaining...'

PERCENTAGE

```
Initial = (A*100^3) / (100+x)(100+y)(100+z)
```

Explanation: *Successive increases.*

How to Identify: Additions like 'x% added, then y% of increased...'

PERCENTAGE

```
Pop in n years = P(1+r/100)^n
```

Explanation: *Population growth (Compound).*

How to Identify: Annual fixed percentage increase of population.

PERCENTAGE

```
Pop after 3 yrs = P(100+x)(100+y)(100+z)/100^3
```

Explanation: *Varying population rates.*

How to Identify: Rates for year 1, 2, and 3 are different.

PERCENTAGE

```
Cons. Reduction = (r/100+r) * 100%
```

Explanation: *Price rises, keep expense same.*

How to Identify: Phrases like 'so as not to increase expenditure'.

PERCENTAGE

```
Cons. Increase = (r/100-r) * 100%
```

Explanation: *Price drops, keep expense same.*

How to Identify: Phrases like 'so as not to decrease expenditure'.

PERCENTAGE

```
Net Change = x^2/100 decrease
```

Explanation: *Successive x% increase and x% decrease.*

How to Identify: The same percentage is increased and then decreased.

PERCENTAGE

```
Net Change = [x-y-(xy/100)]%
```

Explanation: *One x% increase, one y% decrease.*

How to Identify: Two different changes (inc/dec) on the same value.

PERCENTAGE

```
Net Change = [x+y+(xy/100)]%
```

Explanation: *Two successive increases.*

How to Identify: Two positive percentage changes (inc/inc).

PERCENTAGE

Revenue Effect = [Inc - Dec - (Inc*Dec/100)]

Explanation: Price vs Consumption effect.

How to Identify: Price goes up/down while quantity goes up/down.

PERCENTAGE

Max Marks M = 100*(y+z)/x

Explanation: Score y, fail by z, pass x%.

How to Identify: Student scores some marks and fails by some, pass % given.

PERCENTAGE

Max Marks M = 100*(a+b)/(y-x)

Explanation: Two students pass/fail marks diff.

How to Identify: One student fails by 'a', another exceeds by 'b'.

PERCENTAGE

Area Error = [x - y - (xy/100)]

Explanation: Rectangle side measurement errors.

How to Identify: One side measured x% more, other y% less.

PERCENTAGE

Area Increase = [2x + (x^2/100)]%

Explanation: Sides of square/circle inc by x%.

How to Identify: Radius or side increased, find effect on area.

PERCENTAGE

Pass % in both = 100 - (x + y - z)

Explanation: Venn diagram shortcut.

How to Identify: x% fail in Sub A, y% fail in Sub B, z% fail in both.

PROFIT AND LOSS

```
Profit = SP - CP
```

Explanation: *Basic profit definition.*

How to Identify: Standard profit calculation.

PROFIT AND LOSS

```
Loss = CP - SP
```

Explanation: *Basic loss definition.*

How to Identify: Standard loss calculation.

PROFIT AND LOSS

```
Gain/Loss % = (G or L / CP) * 100%
```

Explanation: *Percentage of profit or loss.*

How to Identify: Finding the rate of return on cost.

PROFIT AND LOSS

```
Gain % = [Error / (True - Error)] * 100%
```

Explanation: *False weight profit shortcut.*

How to Identify: Dishonest shopkeeper using less weights.

PROFIT AND LOSS

```
Total Profit % = [(%P + %Less)/(100-%Less)] * 100%
```

Explanation: *Profit with false weight.*

How to Identify: Dealer adds profit % on price AND uses less weights.

PROFIT AND LOSS

```
CP = (More Gain * 100) / Diff in % P
```

Explanation: *Shortcut for profit change.*

How to Identify: Difference in profit amount given for two profit % scenarios.

PROFIT AND LOSS

`SP = [More Rupees * (100+%Gain)]/(%G+%L)`

Explanation: *Switch from loss to gain.*

How to Identify: Sold at loss, if sold for 'X' more, would gain 'Y%'.

PROFIT AND LOSS

`Profit % = [(x-y)/y] * 100`

Explanation: *CP of x = SP of y articles.*

How to Identify: Number of articles bought equals number sold for same price.

PROFIT AND LOSS

`CP = (100 * More Charge) / (% Diff)`

Explanation: *Shortcut for charge diff.*

How to Identify: Product price changed and profit/loss % changed accordingly.

TIME AND WORK

`M1*D1*T1*E1*W2 = M2*D2*T2*E2*W1`

Explanation: *Chain rule (Work W is crossed).*

How to Identify: Multiple men, days, hours working on a project.

TIME AND WORK

`Together = (x*y)/(x+y)`

Explanation: *A takes x, B takes y days.*

How to Identify: Two people working together.

TIME AND WORK

```
Together = xyz / (xy+yz+zx)
```

Explanation: *A, B, C work together.*

How to Identify: Three people working together.

TIME AND WORK

```
B Alone = (x*y)/(x-y)
```

Explanation: *Total x, A takes y days.*

How to Identify: Combined time and one person's time given.

TIME AND WORK

```
Original Workers = (More * New Days)/Less Days
```

Explanation: *Shortcut for worker count.*

How to Identify: If 'X' more men were there, work finished 'Y' days earlier.

PIPE & CISTERNS

```
1 hour part = 1/x
```

Explanation: *Work rate for filling.*

How to Identify: Basic filling rate calculation.

PIPE & CISTERNS

```
1 hour empty = 1/y
```

Explanation: *Work rate for emptying.*

How to Identify: Basic leakage or drain rate calculation.

PIPE & CISTERNS

```
Time = xy/(y-x)
```

Explanation: *One fills (x), one empties (y).*

How to Identify: Fill pipe and drain pipe open together.

PIPE & CISTERNS

`Time = xy/(x+y)`

Explanation: *Both fill (x and y).*

How to Identify: Two inlet pipes open together.

PIPE & CISTERNS

`Time = xyz / (yz+xz-xy)`

Explanation: *2 fill (x,y), 1 empty (z).*

How to Identify: Three pipes: two inlet, one outlet.

PIPE & CISTERNS

`Leak empty time = xy/(y-x)`

Explanation: *Filled in x, leaked in y.*

How to Identify: Tank fills slower due to a leak.

TIME AND DISTANCE

`Speed = Distance / Time`

Explanation: *Basic speed definition.*

How to Identify: Standard motion calculation.

TIME AND DISTANCE

`Speed a:b -> Time b:a`

Explanation: *Inverse ratio rule.*

How to Identify: Speeds of two objects compared over same distance.

TIME AND DISTANCE

`Avg Speed = 2xy/(x+y)`

Explanation: *Harmonic mean speed.*

How to Identify: Round trip or two equal distance segments.

TIME AND DISTANCE

Dist = [Prod S / Diff S] * Diff Time

Explanation: Shortcut for arrival diff.

How to Identify: Late/Early problems (Late by 10m, Early by 5m).

TIME AND DISTANCE

Dist = Total Time * [Prod S / Add S]

Explanation: Total journey time given.

How to Identify: Going and coming back in total 'T' hours.

TIME AND DISTANCE

Meeting dist = (S1*S2*Diff Time)/(Diff Speed)

Explanation: Catch up distance.

How to Identify: One person starts later and catches up.

TIME AND DISTANCE

Dist = 2 * Total Dist * (a/a+b)

Explanation: Meeting point shortcut.

How to Identify: Two people meet after traveling from A to B and back.

TIME AND DISTANCE

Rest Time/hr = (Diff Speed)/(No Stop Speed)

Explanation: Stoppage time shortcut.

How to Identify: Given speed with and without stoppages.

PROBLEM ON TRAIN

Rel Speed = S1 + S2 (Opposite)

Explanation: Trains moving towards each other.

How to Identify: Opposite direction trains.

PROBLEM ON TRAIN

```
Rel Speed = S1 - S2 (Same)
```

Explanation: *Trains moving in same direction.*

How to Identify: One train overtaking another.

PROBLEM ON TRAIN

```
Dist = Train + Platform
```

Explanation: *Crossing a platform/bridge.*

How to Identify: Train passing a platform of some length.

PROBLEM ON TRAIN

```
Train Length = [Plat L / Diff T] * Pole T
```

Explanation: *Pole vs Platform crossing.*

How to Identify: Train crosses a pole in T1 and platform in T2.

PROBLEM ON TRAIN

```
Faster S = Avg L * [1/Opp T + 1/Same T]
```

Explanation: *Two train interaction shortcut.*

How to Identify: Crossing times in same vs opposite direction given.

PROBLEM ON TRAIN

```
Slower S = Avg L * [1/Opp T - 1/Same T]
```

Explanation: *Two train interaction shortcut.*

How to Identify: Crossing times in same vs opposite direction given.

PROBLEM ON TRAIN

```
S2 = S1 * sqrt(T1/T2)
```

Explanation: *Speeds after meeting.*

How to Identify: Trains cross and reach destinations in T1 and T2.

BOATS AND STREAMS

```
Upstream = x - y
```

Explanation: *Against the flow.*

How to Identify: Boat moving against current.

BOATS AND STREAMS

```
Downstream = x + y
```

Explanation: *With the flow.*

How to Identify: Boat moving with current.

BOATS AND STREAMS

```
Dist = z(x^2 - y^2)/2x
```

Explanation: *Total trip time given.*

How to Identify: Boat goes to a place and back in total 'z' hours.

BOATS AND STREAMS

```
Boat S = z(x+y)/(y-x)
```

Explanation: *Down vs Up time given.*

How to Identify: Takes x hrs down and y hrs up; current speed z given.

BOATS AND STREAMS

```
Boat S = [(Stream S)*(Sum T)]/(Diff T)
```

Explanation: *Time comparison shortcut.*

How to Identify: Takes T1 for downstream and T2 for upstream.

ALLIGATION

Cheaper/Dearer = (D-M)/(M-C)

Explanation: *Rule of Alligation.*

How to Identify: Mixing two items of different costs for a target mean.

ALLIGATION

Sugar Added = [Sol*(Req-Pres)]/(100-Req)

Explanation: *Concentration change.*

How to Identify: Adding pure solute to a solution to increase %.

ALLIGATION

Water Added = [Sol*(Req-Pres)]/(1-Req)

Explanation: *Dilution shortcut.*

How to Identify: Adding water to change the fractional value of a mix.

SIMPLE INTEREST

SI = ptr/100

Explanation: *Basic Simple Interest.*

How to Identify: Standard interest calculation.

SIMPLE INTEREST

Installment = 100A / [100t + rt(t-1)/2]

Explanation: *Debt installment shortcut.*

How to Identify: Annual payment to discharge a debt over time.

SIMPLE INTEREST

P = (Interest * 100) / (t1r1 + t2r2 + ...)

Explanation: *Varying rates over time.*

How to Identify: Principal invested at different rates for different periods.

SIMPLE INTEREST

Rate = [100 * (Multiple - 1)] / Time

Explanation: Principal doubles/triples.

How to Identify: Amount becomes 'n' times in 'T' years.

SIMPLE INTEREST

Sum = (More Int * 100)/(Time * More Rate)

Explanation: Interest change shortcut.

How to Identify: If rate was X% more, interest would be Y more.

COMPOUND INTEREST

Amount = P[1 + r/100]^t

Explanation: Basic Compound Interest.

How to Identify: Annual compounding calculation.

COMPOUND INTEREST

Half-yearly: P[1 + r/200]^2t

Explanation: Compounded twice a year.

How to Identify: Phrases like 'compounded semi-annually'.

COMPOUND INTEREST

Quarterly: P[1 + r/400]^4t

Explanation: Compounded four times a year.

How to Identify: Phrases like 'compounded quarterly'.

COMPOUND INTEREST

Amount = P[1+r1/100]*[1+r2/100]...

Explanation: Successive varying rates.

How to Identify: Rates for year 1, 2, 3 are different.

COMPOUND INTEREST

```
CI-SI Diff (2y) = P(r/100)^2
```

Explanation: *Shortcut for 2-year difference.*

How to Identify: Finding difference between SI and CI for 2 years.

COMPOUND INTEREST

```
CI-SI Diff (3y) = [3r + 3r^2/100 + r^3/100^2]% of P
```

Explanation: *Shortcut for 3-year difference.*

How to Identify: Finding difference between SI and CI for 3 years.

MENSURATION

```
Area Rect = L * B
```

Explanation: *Rectangle area.*

How to Identify: Basic 2D space calculation.

MENSURATION

```
Diagonal Rect = sqrt(L^2 + B^2)
```

Explanation: *Rectangle diagonal.*

How to Identify: Finding distance between opposite corners.

MENSURATION

```
Area Square = Side^2 = 1/2 * Diag^2
```

Explanation: *Square area.*

How to Identify: Basic 2D space calculation.

MENSURATION

```
Area 4 walls = 2 * (L+B) * H
```

Explanation: *Room interior area.*

How to Identify: Painting or tiling the walls of a room.

MENSURATION

```
Area Rhombus = 1/2 * (d1*d2)
```

Explanation: *Rhombus area.*

How to Identify: Given lengths of the two diagonals.

MENSURATION

```
Area Equil. Tri = sqrt(3)/4 * Side^2
```

Explanation: *Equilateral triangle area.*

How to Identify: Triangle with all sides equal.

MENSURATION

```
Area Isos. Tri = b/4 * sqrt(4a^2 - b^2)
```

Explanation: *Isosceles triangle area.*

How to Identify: Triangle with two sides equal.

MENSURATION

```
Heron's Area = sqrt(s(s-a)(s-b)(s-c))
```

Explanation: *Area of any triangle.*

How to Identify: Three side lengths (a, b, c) are known.

MENSURATION

```
Area Trapezium = 1/2 * (sum parallel)*H
```

Explanation: *Trapezium area.*

How to Identify: Quad with only two parallel sides.

MENSURATION

`Circumference Circle = 2 * (22/7) * r`

Explanation: *Circle perimeter.*

How to Identify: Finding the length of the boundary.

MENSURATION

`Area Circle = (22/7) * r^2`

Explanation: *Circle area.*

How to Identify: Basic 2D space calculation.

MENSURATION

`Volume Cuboid = lbh`

Explanation: *Cuboid capacity.*

How to Identify: Finding how much a box can hold.

MENSURATION

`Surface Area Cuboid = 2(lb+bh+lh)`

Explanation: *Cuboid outer area.*

How to Identify: Painting or wrapping a rectangular box.

MENSURATION

`Diagonal Cuboid = sqrt(l^2+b^2+h^2)`

Explanation: *Longest rod inside box.*

How to Identify: Longest possible distance inside a cuboid.

MENSURATION

`Volume Cube = a^3`

Explanation: *Cube capacity.*

How to Identify: Finding capacity of a cubic container.

MENSURATION

Volume Cylinder = (22/7)*r^2*h

Explanation: Cylinder capacity.

How to Identify: Finding volume of a pipe or tank.

MENSURATION

Curved SA Cylinder = 2*(22/7)rh

Explanation: Cylinder side area.

How to Identify: Painting only the side of a pipe.

MENSURATION

Volume Sphere = (4/3)*(22/7)*r^3

Explanation: Sphere capacity.

How to Identify: Finding volume of a ball.

MENSURATION

Surface Area Sphere = 4*(22/7)*r^2

Explanation: Sphere outer area.

How to Identify: Total area of a ball's surface.

MENSURATION

Volume Hemisphere = (2/3)*(22/7)*r^3

Explanation: Hemisphere capacity.

How to Identify: Half of a sphere's volume.

MENSURATION

Total SA Hemisphere = 3*(22/7)*r^2

Explanation: Hemisphere total area.

How to Identify: Includes curved side and flat top circle.