# Quant Formulas for Bank Exams

The Bank Exams test a candidate's numerical ability and problem-solving skills extensively. Since the quantitative section can be time-consuming, knowing key formulas and applying them correctly is crucial to performing well. Mastery of formulas not only speeds up calculations but also helps avoid common mistakes during exams. This article presents all the essential quantitative aptitude formulas organized by topic, with simple explanations and examples for better understanding and quick revision.

## Bank Exam Formulas

This table summarizes key formulas used in quantitative aptitude topics like percentages, profit & loss, simple interest, time & work, geometry, algebra, and more. It serves as a quick reference guide for students preparing for competitive exams or brushing up on math fundamentals.

| Topic | Formula | Description |
|---|---|---|
| **Percentage** | % Increase = [(New – Old)/Old] × 100 | To calculate percentage increase |
| | % Decrease = [(Old – New)/Old] × 100 | To calculate percentage decrease |
| | Population after n years = P(1 + R/100)^n | For population growth |
| | Depreciation = P(1 − R/100)^n | Value decreases over time |
| **Profit & Loss** | SP = [(100 + Profit%)/100] × CP | Find selling price when profit % is given |
| | SP = [(100 − Loss%)/100] × CP | Find selling price when loss % is given |
| | CP = [100/(100 + Profit%)] × SP | Find cost price from selling price and profit % |
| **Simple Interest** | SI = PTR/100 | P = Principal, T = Time, R = Rate |
| | Total Amount = SI + P | Final amount received |
| **Compound Interest** | CI (Annual) = P[(1 + R/100)^n − 1] | CI over n years annually compounded |
| | CI (Half-Yearly) = P[(1 + R/200)^(2n) − 1] | Compounded semi-annually |

| | | |
|---|---|---|
| | CI (Quarterly) = P[(1 + R/400)^(4n) − 1] | Compounded quarterly |
| **Time & Distance** | Relative Speed (Same Direction) = (faster − slower) | For two moving objects in same direction |
| | Relative Speed (Opposite Direction) = (faster + slower) | For objects in opposite direction |
| **Trains** | Time = Length / Speed | Time taken to cross object |
| | Time to cross platform = (Train length + Platform length)/Speed | Applies to stationary platforms |
| | Time to cross man = Train length / Speed | Man assumed stationary |
| **Boats & Streams** | Time = Distance / Speed | Time formula still applies |
| | Total time = Distance/Downstream + Distance/Upstream | If round trip is involved |
| **Time & Work** | Work = Time × Efficiency | Work is product of time and efficiency |
| | Efficiency = 1 / Time | Inverse of time |
| | If A is x times as good as B, Ratio of work = x:1 | Useful in comparative efficiency |
| **Pipes & Cisterns** | Net Work = (Inlet rate − Outlet rate) | For combined pipe flows |
| | Time to empty when both run = 1 / (outlet rate − inlet rate) | When outlet is faster |
| **Averages** | Average = (Sum of n items)/n | Basic average |
| | New Average = (Old Sum ± Change) / n | When a value is added or removed |
| **Ratio & Proportion** | Inverse Ratio = 1/a : 1/b = b : a | Inverse proportion |
| | Mean Proportion = √(a × b) | Middle term between two values |
| | Third Proportion = $b^2$ / a | If a:b = b:c, c is third proportion |
| **Mixtures** | Alligation Rule: Quantity Ratio = (CP1 − Mean):(Mean − CP2) | CP = Cost Price |
| | Final Concentration = (xA + yB) / (x + y) | Mixing two solutions |

| | | |
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| **Mensuration (2D)** | Perimeter of Rectangle = 2(l + b) | Boundary length |
| | Perimeter of Square = 4a | Side × 4 |
| | Circumference of Circle = 2πr | Circular boundary |
| | Area of Rhombus = (½) × d1 × d2 | d1, d2 = diagonals |
| **Mensuration (3D)** | TSA (Cube) = $6a^2$ | Total Surface Area |
| | TSA (Cuboid) = 2(lb + bh + hl) | Total surface of cuboid |
| | CSA (Cylinder) = 2πrh | Curved Surface Area |
| | TSA (Cylinder) = 2πr(h + r) | Includes top & bottom |
| | Volume of Cone = (1/3)$\pi r^2 h$ | Volume of cone |
| | Volume of Sphere = (4/3)$\pi r^3$ | Volume of sphere |
| | Surface Area of Sphere = $4\pi r^2$ | Surface of sphere |
| **Algebra** | $(a + b)^2 = a^2 + 2ab + b^2$ | Expansion formula |
| | $(a - b)^2 = a^2 - 2ab + b^2$ | Expansion formula |
| | $a^2 - b^2 = (a + b)(a - b)$ | Identity formula |
| | $(x + a)(x + b) = x^2 + (a + b)x + ab$ | Binomial product |
| **Number Series** | nth term of AP = a + (n − 1)d | Arithmetic Progression |
| | Sum of n terms of AP = n/2 × [2a + (n − 1)d] | Sum of AP terms |
| | nth term of GP = a × r^(n − 1) | Geometric Progression |
| | Sum of n terms of GP = a[(r^n − 1)/(r − 1)] | r ≠ 1 |
| **Permutation & Comb.** | nPn = n! | All items arranged |
| | nCr = n! / (r!(n − r)!) | r items selected from n |
| **Probability** | P(E) = Favourable Outcomes / Total Outcomes | Fundamental formula |
| | P(A ∩ B) = P(A) × P(B) | For independent events |
| | P(not A) = 1 − P(A) | Complement rule |

# Tips for Mastering Quantitative Aptitude for Bank Exams

1. **Memorize formulas thoroughly:** Write them down repeatedly and revise regularly.
2. **Practice regularly:** Apply formulas to solve a variety of problems.
3. **Understand concepts:** Don't just memorize; understand how formulas are derived and when to use them.
4. **Time management:** Practice timed quizzes to improve speed.
5. **Use shortcuts:** Learn quick calculation tricks for percentage, simplification, and approximations.
6. **Take mock tests:** Analyze your performance and identify weak areas.