Level 3B

Middle School

38-Week Course | 1 Hour 45 Min Classes | Once A Week

Level 3B at Bhanzu bridges middle school and high school math by deepening algebra, geometry, and function-based thinking.

Students learn to tackle systems of equations using multiple methods. They explore functions and dive into geometric reasoning with theorems and proofs. This level builds strong problem-solving and prepares students for high school math with confidence.

MODULE 1

Advanced Arithmetic II

- Introduction to Rational & Irrational Numbers
- Speed Operations on Rational Numbers
- Plotting Rational Numbers
- Properties of Numbers
- Percentages & Proportions
- Arithmetic & Geometric Progression
- Expressions and Exponents
- Scenario Based Questions
- Module Quiz

MODULE 2

Algebra I Foundations

- Polynomial Factorization
- Squares, Square Roots, and Cubes
- Equations and Inequalities
- Solving Linear Equations in 2 Variables I
- Solving Linear Equations in 2 Variables II
- Framing & Graphing Linear Inequalities
- Linear Programming
- Scenario Based Questions
- Module Quiz

MODULE 3

Advanced Geometry

- Parts of a Circle
- Perimeter & Area of a Circle
- Volume & Surface Area
- Scaling Geometric Figures
- Constructions
- Congruency
- Triangle Constructions & Proofs
- Scenario Based Questions
- Module Quiz

MODULE 4

Statistics & Functions

- Introduction to Functions
- Graphing of Functions
- Measures of Central Tendency
- Measures of Dispersion
- Simple Probability & Listing Events
- Probability of Compound Events
- Conditional Probability
- Scenario Based Questions
- Module Quiz

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Sample Problems

Here are a few sample questions that students will be able to solve upon completing each module of Level 3B

Advanced Arithmetic II

Q1. A hiker starts at −250 feet. He climbs up $120\frac{1}{2}$ feet, then descends 30 feet. What is his final elevation?

Q2. Is the set of fractions closed under multiplication? Explain why or why not.

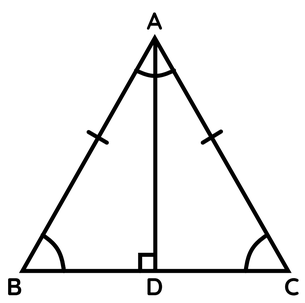
Algebra I Foundations

Q3. A rectangular section of stadium seating is arranged so that the number of rows equals the number of seats in each row. If the section seats 225 people in total, how many rows does it have?

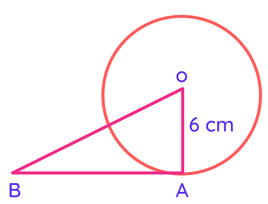
Q4. The sum of two numbers is 25. Three times the first number minus the second is 15. Find both numbers.

Advanced Geometry

Q5. In triangle ABC, D lies on BC such that AD is the angle bisector of ∠BAC. Given that AB = AC, prove that △ABD ≅ △ACD and that AD is also the perpendicular bisector of BC.



Q6. A tangent (AB) is drawn from a point outside a circle. If the radius of the circle is 6 cm and the length of the tangent AB is 8 cm, find the distance between the center of the circle and the point outside the circle.



Statistics & Functions

Q7. A group of 12 students were surveyed to find out how many hours they studied for their math test last week. The results (in hours) are:

8.5, 6, 7.5, 9, 10.5, 6.5, 7, 8, 5, 9.5, x, 68.5

The mean study time was 7.5 hours. Find the value of x.

Q8. Let the function f(x) be defined as:

$$f(x) = \begin{cases} 2x^2 - 3x + 1, & \text{if } x < 0 \\ x^2 + 2x - 5, & \text{if } x \leq 0 \end{cases}$$

Evaluate:

f(-3), f(0), f(2)