

FREE ORIGINAL STARTER BOOKLET

Class 10 Mathematics Olympiad practice

For students exploring SOF IMO. Concept notes, worked examples, and six original questions with answers.

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How to use this booklet

Read one concept note, cover its worked example, and try the matching questions without looking at the answers. Then check the official syllabus for anything this short guide does not cover.

Syllabus map

Real numbers and algebra; equations and arithmetic progressions; geometry, coordinates and trigonometry; statistics and probability; reasoning.

This is a broad revision map, not a transcription or a complete SOF syllabus. For the authoritative current topic list and exam pattern, use the official source linked at the end.

Four concepts to practise

Quadratics

To solve a quadratic, first look for factors. Check both solutions in the original equation. For $ax^2+bx+c=0$, the sum of roots is $-b/a$ and their product is c/a .

Worked example: $x^2-7x+12=(x-3)(x-4)$, so the roots are 3 and 4.

Arithmetic progressions

An arithmetic progression has a constant difference d . Its n th term is $a+(n-1)d$. Write a and d explicitly before substituting.

Worked example: For 6, 10, 14, ... the seventh term is $6+6*4=30$.

Coordinates and trigonometry

For points (x_1,y_1) and (x_2,y_2) , distance is $\sqrt{(x_2-x_1)^2+(y_2-y_1)^2}$. In a right triangle, sine is opposite/hypotenuse and cosine is adjacent/hypotenuse.

Worked example: The distance from $(1,2)$ to $(4,6)$ is $\sqrt{3^2+4^2}=5$.

Probability

For equally likely outcomes, probability is favourable outcomes divided by total outcomes. Check that probabilities lie between 0 and 1.

Worked example: A fair die shows a multiple of 3 on two faces, so the probability is $2/6=1/3$.

Your turn

Try each problem before checking the answer key on the next page.

1. Solve $x^2 - 9x + 20 = 0$.
2. Find the 12th term of 2, 5, 8, ...
3. Find the distance between (0,0) and (5,12).
4. If $\sin A = 5/13$ for an acute angle, find $\cos A$.
5. A fair coin is tossed twice. Find $P(\text{two heads})$.
6. Find the sum of roots of $3x^2 - 12x + 2 = 0$.

Answers and next steps

1. $x=4$ or $x=5$; factor as $(x-4)(x-5)$.
2. 35; use $2+11\cdot3$.
3. 13; apply Pythagoras to 5 and 12.
4. 12/13; the adjacent side is 12 in a 5-12-13 triangle.
5. 1/4; only HH among four equally likely results.
6. 4; use $-b/a=12/3$.

What this does not cover

This short booklet is not a full textbook, full-length mock exam, or complete syllabus. SOF Level 1 also includes logical reasoning and an achievers section. Revisit your current and previous class concepts before an exam.

Official source

SOF IMO Class 10 syllabus

Prepared by BodhiScore. Reviewed October 2026. The linked SOF page is the final authority for changes.