

# Australian Mathematics Competition Past Papers

## A - Middle Primary (Years 3 - 4)

### Problem:

I have five coloured discs in a pile as shown.  
I take the top two discs and put them on the bottom (with the red disc still on top of the blue disc).  
Then I again take the top two discs and put them on the bottom.  
If I do this until I have made a total of 21 moves, which disc will be on the bottom?



- (A) red      (B) blue      (C) green      (D) yellow      (E) orange

**Answer:** C

## B - Upper Primary (Years 5 - 6)

### Problem:

Lee's favourite chocolates are 80c each. He has five dollars to spend.  
How many of these chocolates can he buy?

- (A) 4              (B) 5              (C) 6              (D) 7              (E) 8

**Answer:** C

## C - Junior (Years 7 - 8)

### Problem:

What is the largest 3-digit number that has all of its digits different and is equal to 37 times the sum of its digits?

**Answer:** 629

## D - Intermediate (Years 9 - 10)

### Problem 1:

3-digit number  $abc$ :

$$\begin{array}{r} \phantom{\times} \phantom{1} \phantom{c} \phantom{b} \phantom{a} \phantom{2} \\ \phantom{\times} \phantom{1} \phantom{c} \phantom{b} \phantom{a} \phantom{2} \\ \times \phantom{1} \phantom{c} \phantom{b} \phantom{a} \phantom{2} \phantom{2} \\ \hline 1 \phantom{c} \phantom{b} \phantom{a} \phantom{2} \phantom{2} \phantom{2} \end{array}$$

**Answer:** 573

### Problem 2:

How many 5-digit numbers contain all the digits 1, 2, 3, 4 and 5 and have the property that the difference between each pair of adjacent digits is at least 2?

- (A) 24              (B) 14              (C) 18              (D) 20              (E) 10

**Answer:** B

## E - Senior (Years 11-12)

### Problem:

What is the radius of the largest sphere that will fit inside a hollow square pyramid, all of whose edges are of length 2?

- (A)  $\sqrt{2} - 1$       (B)  $\frac{2 - \sqrt{2}}{2}$       (C)  $\frac{\sqrt{6} - \sqrt{2}}{2}$       (D)  $\frac{\sqrt{3}}{3}$       (E)  $\frac{\sqrt{2}}{4}$

**Answer:** C

**Australian mathematics competition past papers** are an invaluable resource for students aspiring to excel in mathematics. These past papers provide insights into the types of questions asked, the format of the competition, and the level of difficulty one can expect. For students preparing for upcoming competitions, understanding and practicing with these papers can significantly enhance their problem-solving skills and boost their confidence.

## Overview of the Australian Mathematics Competition

The Australian Mathematics Competition (AMC) is one of the largest mathematics competitions in Australia, engaging thousands of students from various educational backgrounds. Established in 1978, the AMC is designed to foster a love for mathematics and challenge students with intriguing problems that require creative thinking and logical reasoning.

### Objectives of the AMC

The primary objectives of the AMC include:

1. Encouraging Mathematical Thinking: The competition encourages students to think critically and approach problems analytically.
2. Identifying Mathematical Talent: It serves as a platform to recognize and nurture students with exceptional mathematical abilities.
3. Promoting Engagement in Mathematics: By participating in the competition, students develop a greater interest in mathematics and its applications.

## The Importance of Past Papers

Using **australian mathematics competition past papers** is crucial for students preparing for the AMC. These papers not only help in familiarizing students with the competition format but also offer a reflection of the types of questions that typically appear.

### Benefits of Studying Past Papers

1. Understanding Question Types: AMC questions can vary widely in style. Past papers allow students to identify common question types and themes.
2. Practice Under Exam Conditions: Working through past papers under timed conditions helps simulate the actual exam experience, improving time management skills.
3. Identifying Weak Areas: After attempting various papers, students can pinpoint areas where they struggle, allowing them to focus their study efforts more effectively.
4. Building Confidence: Familiarity with the exam format and types of questions can significantly reduce anxiety and build confidence on the day of the competition.

# Where to Find Australian Mathematics Competition Past Papers

Finding past papers for the AMC is relatively straightforward. Here are some reliable sources:

## 1. Official AMC Website

The official Australian Mathematics Trust (AMT) website is the best place to start. They provide access to past competition papers, solutions, and other resources.

## 2. School Resources

Many schools keep archives of past competition papers. Students should inquire with their mathematics teachers or school libraries for access to these resources.

## 3. Online Educational Platforms

Several online platforms and forums dedicated to mathematics education may provide access to AMC past papers. Websites like Maths Online or educational YouTube channels often share insights and solutions.

## 4. Study Groups and Forums

Joining study groups or forums, either online or in-person, can be an excellent way to share resources. Students can exchange past papers and solutions, enhancing their collective preparation.

# How to Effectively Prepare Using Past Papers

Merely accessing **australian mathematics competition past papers** is not enough; students need a strategic approach to maximize their preparation.

## 1. Create a Study Schedule

Establish a regular study routine that incorporates working through past papers. Allocating specific times for practice can help maintain consistency and discipline.

## **2. Start with Earlier Papers**

Begin with older papers to build foundational skills. These papers may feature simpler questions that can help boost confidence before tackling more complex problems.

## **3. Analyze Mistakes**

After completing each past paper, carefully review any errors. Understanding why a particular answer was incorrect is crucial for improvement.

## **4. Time Management Practice**

Set a timer while working on past papers to develop speed and efficiency. This practice will help ensure that students can complete all questions within the allotted time during the actual competition.

## **5. Seek Help When Needed**

If certain concepts or questions are challenging, don't hesitate to seek help from teachers, tutors, or online resources. Collaboration can provide different perspectives and solutions.

## **Common Topics Covered in Past Papers**

While the AMC questions vary from year to year, several key topics are commonly featured. Familiarizing oneself with these areas can help in targeted study efforts.

### **1. Algebra**

Algebraic expressions, equations, and inequalities are frequent subjects in the AMC. Students should practice simplifying expressions and solving equations.

### **2. Geometry**

Questions involving shapes, angles, and properties of geometric figures are common. Understanding theorems and formulas related to geometry is essential.

### 3. Number Theory

This topic often includes problems related to factors, multiples, primes, and divisibility. Students should practice identifying patterns and relationships among numbers.

### 4. Combinatorics

Counting problems and permutations are typically found in AMC papers. Mastering basic combinatorial techniques can provide a significant advantage.

### 5. Probability

Understanding basic probability concepts and calculations can help tackle related questions effectively.

## Conclusion

In conclusion, **australian mathematics competition past papers** serve as a critical tool for students preparing for one of the most prestigious mathematics competitions in Australia. By utilizing these resources, students can enhance their understanding of mathematical concepts, improve problem-solving skills, and build the confidence needed to excel. With a structured approach to practice and a focus on key topics, aspiring mathematicians can significantly increase their chances of performing well in the AMC. Embrace the challenge, and let the past papers guide you to success!

## Frequently Asked Questions

### What is the Australian Mathematics Competition?

The Australian Mathematics Competition (AMC) is an annual mathematics competition for students in Australia and the Pacific region, aimed at fostering a love for mathematics and providing students with an opportunity to showcase their mathematical skills.

### Where can I find past papers for the Australian Mathematics Competition?

Past papers for the Australian Mathematics Competition can be found on the official AMC website, where they provide access to previous years' papers along with solutions and marking schemes.

### How useful are past papers for preparing for the Australian

## **Mathematics Competition?**

Past papers are very useful for preparation as they provide insight into the types of questions asked, help students practice time management, and familiarize them with the competition format.

## **Are there any specific strategies for solving problems in the Australian Mathematics Competition?**

Some effective strategies include reading the questions carefully, looking for patterns, working backwards, and practicing with past papers to become familiar with the problem types and difficulty levels.

## **What age groups participate in the Australian Mathematics Competition?**

The Australian Mathematics Competition caters to a wide range of age groups, with categories for primary school students (Years 3-6) and secondary school students (Years 7-12).

## **How is the Australian Mathematics Competition scored?**

The competition is scored based on the number of correct answers, with different point values assigned to questions based on their difficulty. There are also penalties for incorrect answers in some formats.

## **Can teachers access resources related to past Australian Mathematics Competition papers?**

Yes, teachers can access resources, including past competition papers and teaching materials, through the official AMC website to help prepare their students for the competition.

## **What are the benefits of participating in the Australian Mathematics Competition?**

Participating in the AMC helps students improve their problem-solving skills, enhances their mathematical thinking, provides recognition for their abilities, and can be beneficial for university applications.

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