AUSTRALIAN MATHEMATICS COMPETITION

AUSTRALIAN MATHS TRUST

AMC.

Upper Primary Grade 5-6

TIME ALLOWED

60 minutes

Instructions and Information

General

1. Do not open the booklet until told to do so by your teacher.
2. You may use any teaching aids normally available in your classroom, such as MAB blocks, counters, currency, calculators, play money etc. You are allowed to work on scrap paper and teachers may explain the meaning of words in the paper. Mobile phones are not permitted.
3. Diagrams are NOT drawn to scale. They are intended only as aids.
4. There are 25 multiple-choice questions, each requiring a single answer, and 5 questions that require a whole number answer between 000 and 999. The questions generally get harder as you work through the paper. There is no penalty for an incorrect response.
5. This is a competition not a test; do not expect to answer all questions. You are only competing against your own year in your own country/Australian state so different years doing the same paper are not compared.
6. Read the instructions on the answer sheet carefully. Ensure your name, school name and school year are entered. It is your responsibility to correctly code your answer sheet.
7. When your teacher gives the signal, begin working on the problems.

The answer sheet

1. Use only lead pencil.
2. Record your answers on the reverse of the answer sheet (not on the question paper) by FULLY colouring the circle matching your answer.
3. Your answer sheet will be scanned. The optical scanner will attempt to read all markings even if they are in the wrong places, so please be careful not to doodle or write anything extra on the answer sheet. If you want to change an answer or remove any marks, use a plastic eraser and be sure to remove all marks and smudges.

Integrity of the competition

The AMT reserves the right to re-examine students before deciding whether to grant official status to their score.

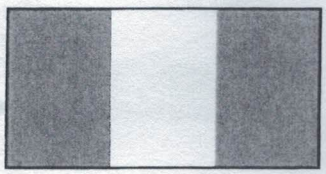
Reminder

You may sit this competition once, in one division only, or risk no score.

Upper Primary Division

1-10 题，每题 3 分
Questions 1 to 10, 3 marks each

1. 右图中，尼日利亚国旗上涂有白色和绿色。
请问绿色部分占总面积的几分之几？



(A) 三分之一　(B) 四分之一　(C) 二分之一
(D) 五分之二　(E) 三分之二

This Nigerian flag is white and green.
What fraction of it is green?

(A) one-third　(B) one-quarter　(C) one-half
(D) two-fifths　(E) two-thirds

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2. 请问空格内要填入哪个数才能使下面的等式成立？

$$\square - 5 = 9$$

Which number makes this number sentence true?

$$\square - 5 = 9$$

(A) 0　(B) 4　(C) 12　(D) 9　(E) 14

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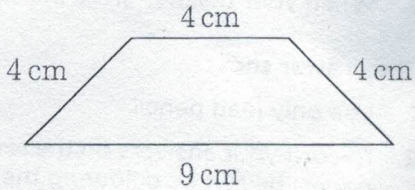
3. 请问右图中四边形的周长是多少？

What is the perimeter of the quadrilateral shown?



(A) 13 cm　(B) 15 cm　(C) 17 cm
(D) 19 cm　(E) 21 cm

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4. 请问下列选项中哪个小数最小？

Which of the following decimal numbers has the smallest value?

8. 小利正在学校排队。有四名学生排在他前面，他后面的学生是前面的两倍。请问这列队伍一共有多少名学生？

Leo is waiting in line at school. There are four students ahead of him and twice as many behind him. How many students are in this line?

(A) 4 (B) 8 (C) 9 (D) 12 (E) 13

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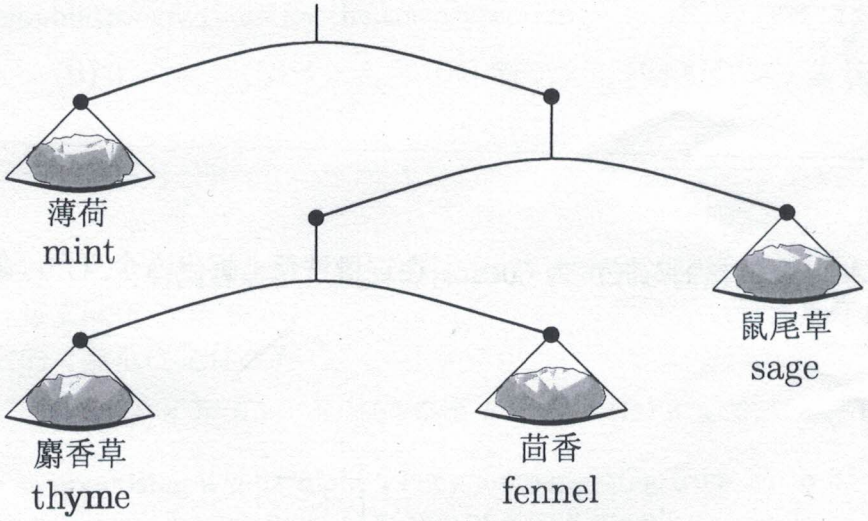
9. 小恺混合了一些草药来制作医疗药水。她利用下面这座天平来称草药。如果她使用 5 克的茴香，请问她需要多少克薄荷？



Cassandra makes a healing potion from a mixture of herbs. She uses this balance to weigh out the herbs. If she uses 5 grams of fennel, how many grams of mint will she need?

(A) 5 (B) 10 (C) 15 (D) 20 (E) 40

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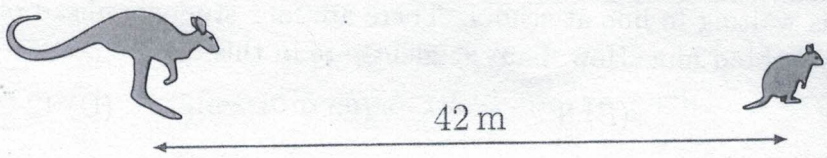
10. 一个果盆中共有 14 个水果。已知桃子的数量是梨子的两倍，桃子的数量是苹果的一半，且没有其它种类的水果。请问果盆中有多少个苹果？

There are 14 pieces of fruit in a bowl. There are twice as many nectarines as pears, and half as many nectarines as apples. There are no other types of fruit. How many apples are there?

(A) 2 (B) 4 (C) 6 (D) 8 (E) 10

13. 一只大袋鼠正在追逐位于它前方 42 m 处的一只小袋鼠。这只大袋鼠每次向前跳 4 m，小袋鼠每次向前跳 1 m。请问这只大袋鼠要跳多少次才能追上小袋鼠？



A kangaroo is chasing a wallaby that is 42 metres ahead. For every 4-metre hop the kangaroo makes, the wallaby makes a 1-metre hop. How many hops will the kangaroo have to make to catch up with the wallaby?

(A) 8 (B) 10 (C) 11 (D) 14 (E) 21

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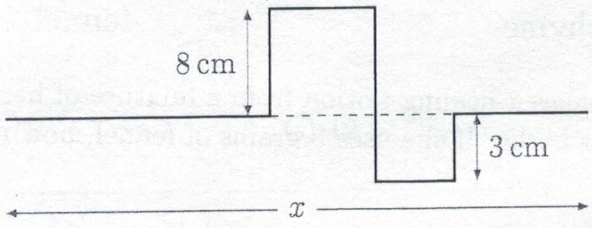
14. 一段直铁丝的总长度为 50cm。在这段铁丝上折出六个直角，使得最终的形状看起来如下图所示：



其中两小段的长度已经在图中标出。请问标注 x 的长度是多少？

A piece of straight wire is 50 cm long. Six right-angled bends are made in the wire, so that it ends up looking like the diagram shown:

The lengths of two sections are shown. What is the length marked x?

(A) 28 cm (B) 31 cm (C) 34 cm (D) 36 cm (E) 39 cm

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18. 现在是上午 10 点，请问经过 2021 个小时后是几点？

(A) 上午 11 点　(B) 下午 1 点　(C) 下午 3 点　(D) 下午 4 点　(E) 下午 5 点

It is 10 am now. What time will it be in 2021 hours time?

(A) 11 am　(B) 1 pm　(C) 3 pm　(D) 4 pm　(E) 5 pm

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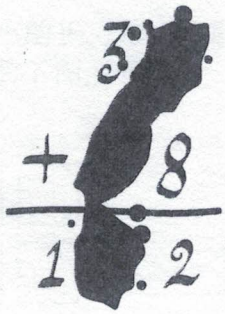
19. 小亚的钢笔水漏在了他的加法作业上，覆盖了算式中的三个数字，如图所示。请问有多少种不同的可能可以使得此算式成立？



Alexander's pen leaked on his addition homework, covering up three of the digits in the calculation shown. How many different possibilities are there for the correct working?

(A) 2　(B) 3　(C) 4　(D) 5　(E) 6

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20. 学校正在筹办一场益智问答之夜，预计会有 25 至 35 人前来参加，这些人会被分为多个队伍，每支队伍 6 至 8 人。
请问队伍数的可能范围是什么？

(A) 4 至 5　(B) 4 至 6　(C) 5 至 6　(D) 3 至 6　(E) 3 至 5

Our school is organising a quiz night. They are expecting from 25 to 35 people to come. The people will be arranged in teams of 6 to 8 people.
What is the range of possible numbers of teams to expect?

(A) 4 to 5　(B) 4 to 6　(C) 5 to 6　(D) 3 to 6　(E) 3 to 5

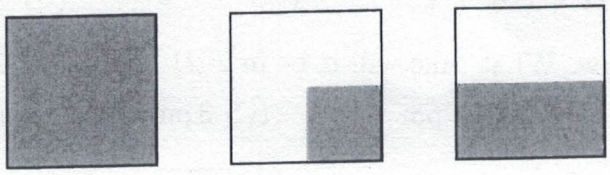
21-25 题，每题 5 分
Questions 21 to 25, 5 marks each

21. 在选举学生会会长时，一共有 4 名候选人，有 453 名学生可以把自己的一票投给其中一名候选人。已知当选人的票数分别超过其他候选人 31 票、25 票和 19 票。请问当选人一共获得多少张票？

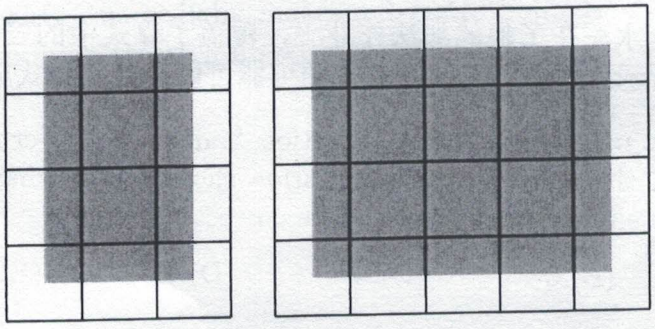
In an election for school captain, there were 4 candidates and 453 students each voted for one candidate. The winner's margins over the other candidates were 31, 25 and 19.
How many votes did the winner receive?

(A) 113　(B) 127　(C) 129　(D) 131　(E) 132

24. 小安有很多以下三种类型的瓷砖。



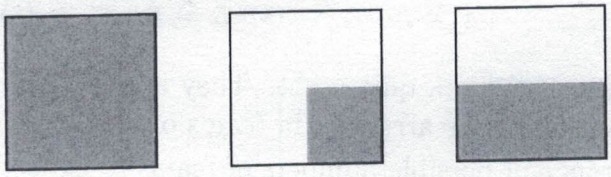
她想拼出一个与下图类似的具有白色边框的绿色矩形瓷砖。



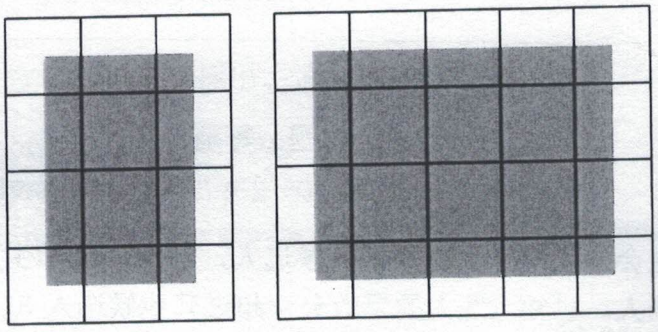
于是她使用尽可能多的瓷砖拼出了一个类似的矩形瓷砖，恰好使用了 20 块全绿的瓷砖。请问她一共使用了多少块瓷砖？

(A) 80　　(B) 66　　(C) 48　　(D) 42　　(E) 39

Anna has a large number of tiles of three types:



She wants to build a green rectangle with a white frame similar to those below.



She builds such a rectangle using as many tiles as possible while using exactly 20 completely green tiles. How many tiles will she use altogether?

(A) 80　　(B) 66　　(C) 48　　(D) 42　　(E) 39

问题 26-30 的答案为 000-999 之间的整数，
请将答案填在答题卡上对应的位置。

第 26 题占 6 分，第 27 题占 7 分，第 28 题占 8 分，
第 29 题占 9 分，第 30 题占 10 分。

For questions 26 to 30, shade the answer as a whole number from 000 to 999 in the space provided on the answer sheet.

Questions 26 - 30 are worth 6, 7, 8, 9 and 10 marks, respectively.

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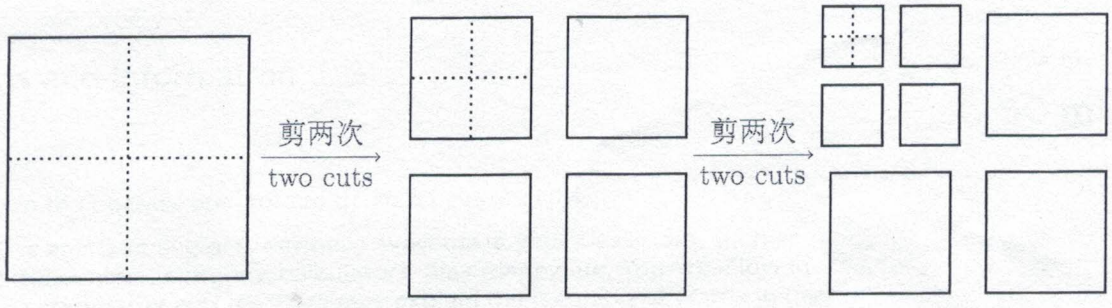
26. 小派沿着两条直线将一张大的正方形纸张裁剪两次，剪成四张较小的正方形。然后取出其中一张小正方形，再剪两次将它剪成四张更小的正方形，如下图所示。



继续重复以上过程，请问小派需要剪多少次才能得到总共 1000 张不同尺寸大小的正方形？

Pip starts with a large square sheet of paper and makes two straight cuts to form four smaller squares. She then takes one of these smaller squares and makes two more straight cuts to make four even smaller ones, as shown.

Continuing in this way, how many cuts does Pip need to make to get a total of 1000 squares of various sizes?

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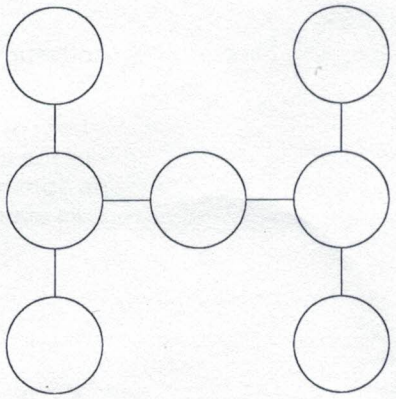
27. 从 1 到 9 选出七个数字填入如图所示的圆圈内，使得每条竖线上的数之积和水平线上的数之积相同。请问这一乘积是多少？



Seven of the numbers from 1 to 9 are placed in the circles in the diagram in such a way that the products of the numbers in each vertical or horizontal line are the same.

What is this product?