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 0 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.
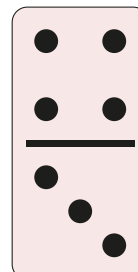
Middle Primary Division

Questions 1 to 10, 3 marks each

1. How many dots are on this domino?

(A) 5   (B) 7   (C) 9

         (D) 10   (E) 11

2. What is the difference between 14 and 2?

(A) 28   (B) 16   (C) 12   (D) 10   (E) 7

3. 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

4. $234 + 100 =$

(A) 23400   (B) 1234   (C) 120304   (D) 334   (E) 244

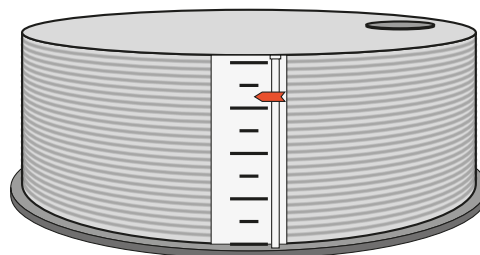**5.** How many minutes are in a quarter of an hour?

(A) 4   (B) 10   (C) 15   (D) 20   (E) 40

6. My tank can hold 80 kL of water.
The indicator on the tank shows the
water level inside the tank.
Which of the following is closest to
the amount of water in the tank?

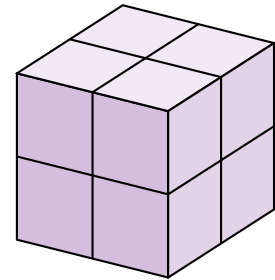(A) 35 kL   (B) 45 kL   (C) 55 kL   (D) 65 kL   (E) 75 kL

7. Which number makes this number sentence true?

$$\boxed{} - 5 = 9$$

(A) 0 (B) 4 (C) 12 (D) 9 (E) 14

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8. Each face of this cube is divided into 4 small squares. How many small squares are there on the outside of the cube altogether?
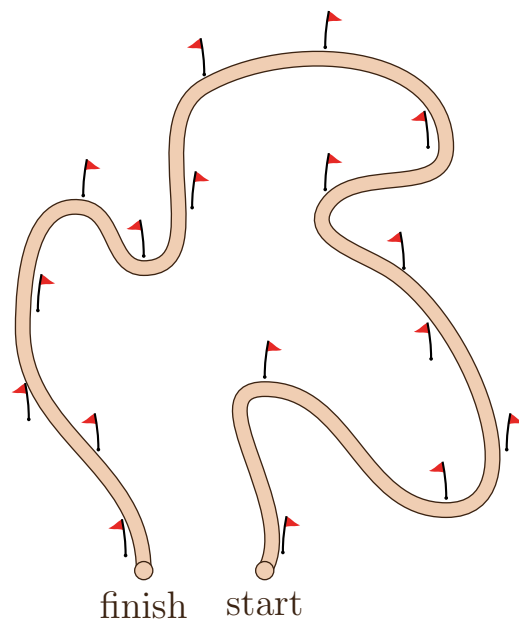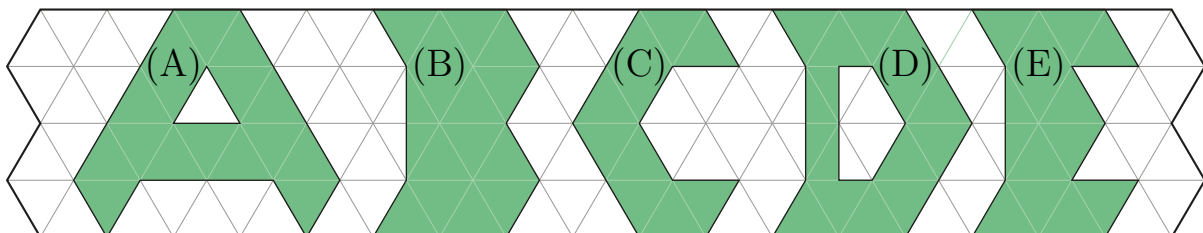
(A) 16 (B) 18 (C) 20

(D) 24 (E) 30

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9. A cross country track is marked out with a number of flags as shown.

How many of the flags will be on the left of the runners when they pass them?

(A) 7 (B) 8 (C) 9

(D) 10 (E) 11

finish start

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10. Which one of these shaded areas is the largest?

(A) (B) (C) (D) (E)

Questions 11 to 20, 4 marks each

11. 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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12. I am shuffling a deck of cards but I accidentally drop a card on the ground every now and then. After a while, I notice that I have dropped five cards.

From above, the five cards look like one of the following pictures. Which picture could it be?

(A)   (B)   (C)

(D)   (E)

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13. Kayla had six apples. She cut them all into quarters and shared them equally between her three brothers and herself. How many apples do they each receive?

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

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14. Five boxes are compared on a balance.

Which of the five boxes is lightest?

(A) A   (B) B   (C) C   (D) D   (E) E

15. Lydia is saving for a cricket bat. The sports shop has the bat she wants for $56 and her grandfather has promised to pay half the price. She has saved $16. How much more does she need to save before she can buy the bat?

(A) $4   (B) $12   (C) $20   (D) $28   (E) $36

16. Five cards with digits 1, 2, 3, 4 and 9 are arranged to form the largest possible 5-digit even number. Which digit is in the tens place?

(A) 1   (B) 2   (C) 3   (D) 4   (E) 9

17. Each letter in this grid stands for a number from 1 to 6.

The numbers outside the grid are the sums of the values of all the letters in each row or column.

For example, in the first column, the values of M, L, L and R add to 16.

What is the value of the letter L?

M	M	F	F	16
L	H	U	H	10
L	F	U	H	11
R	R	R	H	13
16	13	16	5	

(A) 1   (B) 2   (C) 3   (D) 5   (E) 6

18. Greg is 19 years old, Karin is 26 and Anthony is 31. In how many years from now will their ages add to 100?

(A) 6   (B) 8   (C) 16   (D) 24   (E) 26

19. Mr Northrop's class has students from Ainslie, Turner, Downer, Watson and Dickson. He made a chart showing how many live in each suburb.

Unfortunately his dog tore the bottom of the chart, leaving only the last few letters of each suburb. He forgot the order of the suburbs on the chart, but he remembered that more students live in Downer than Watson.

How many students live in Turner?
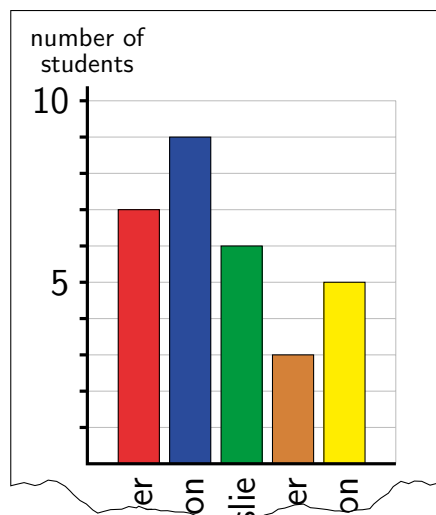
(A) 3 (B) 5 (C) 6 (D) 7 (E) 9

20. 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

Questions 21 to 25, 5 marks each

21. Here are four sentences and their translations into Windarian, an invented language. The two lists are not in the same order.

English	Windarian
Mum likes apples.	Ato bem kito.
Dad likes oranges.	Awe tum kete.
Brother loves apples.	Eke bem kete.
Sister loves apples.	Alo tum kete.

How should we translate the sentence 'Mum loves oranges'?

(A) Awe tum kete (B) Ato bem kito (C) Eke tum kito

(D) Awe bem kete (E) Eke bem kito

22. The biscuit section in a cookbook has 6 pages. The sum of all the page numbers in this section is 147. What is the number of the last page in this section of the book?

(A) 26   (B) 27   (C) 28   (D) 29   (E) 30

23. Six white cubes are joined together as shown. The model is then painted blue all over.

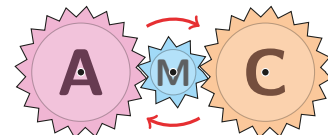When the model is pulled apart, how many faces of these cubes are still white?
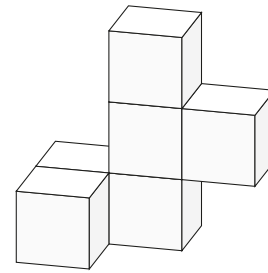
(A) 4   (B) 5   (C) 8   (D) 10   (E) 13

24. Three gears are connected as shown. The two larger gears have 20 teeth each and the smaller gear has 10 teeth.

The middle gear is rotated half a turn in the direction of the arrows, turning the M upside down.
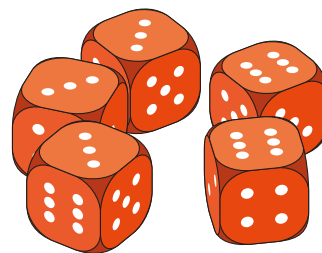
What do the three gears look like after this rotation?

(A)   (B)   (C)

(D)   (E)

25. In a dice game, Yasmin rolls 5 standard dice, all at once.

She needs to roll a *full house*, which has a triple of one number and a pair of a different number. How many different full house rolls are possible?

(A) 2   (B) 5   (C) 18   (D) 25   (E) 30

For questions 26 to 30, shade the answer as a whole number from 0 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. This is a magic square, so that all rows, columns and diagonals add up to the same sum.

Some numbers are already filled in.

When we complete it and multiply the numbers in the three shaded squares, what do we get?

16	a	2	
	10	c	8
	b	7	12
4	15		1

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27. Hayden saved $1420 and Mitchell saved $505. After they each spent an equal amount of money, Hayden had 4 times as much money as Mitchell. In dollars, how much did each of them spend?
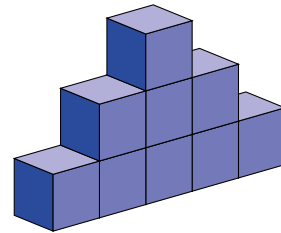
28. The block pattern below has 1 block in the first tower, 4 blocks in the second tower, 9 blocks in the third tower and so on.

How many blocks are needed to make all of the first ten towers in this pattern?
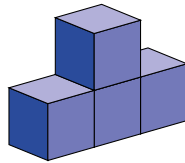

First tower   Second tower   Third tower

29. Verity has 6 cards with digits 1, 2, 3, 4, 5 and 6.
She arranges them to form three 2-digit numbers.
Only her first number is a multiple of 4.
Only her second number is a multiple of 5.
Only her third number is a multiple of 6.
What is the answer when she multiplies her first two numbers and then adds her third number?
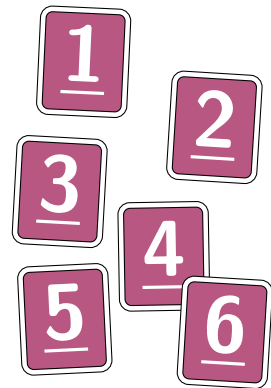

30. I want to place the numbers 1 to 10 in this diagram, with one number in each circle. On each of the three sides, the four numbers add to a *side total*, and the three side totals are all the same.
What is the smallest number that this side total could be?
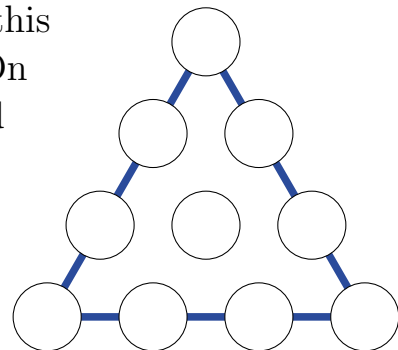
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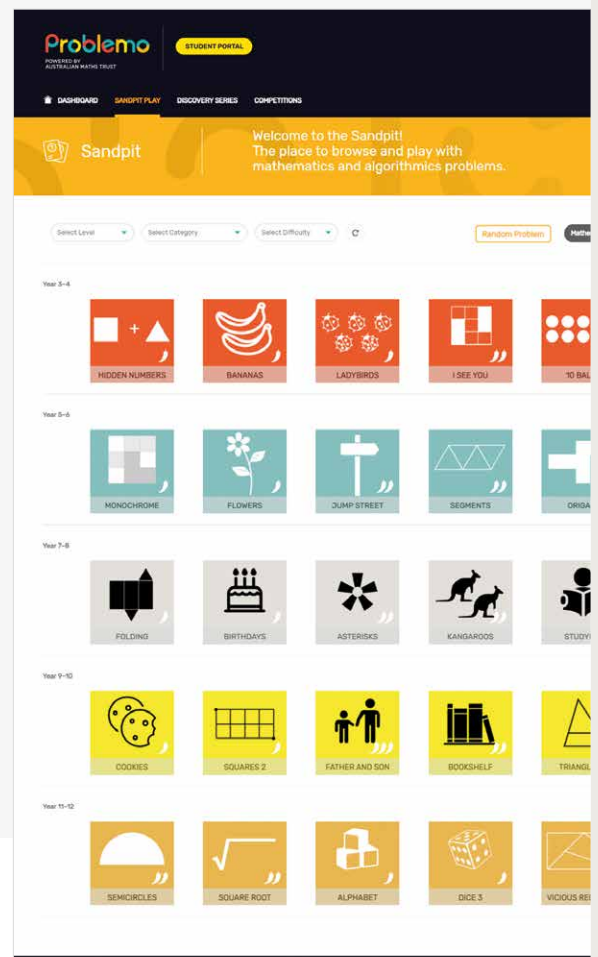
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