AUSTRALIAN MATHEMATICS COMPETITION

AN ACTIVITY OF THE AUSTRALIAN MATHEMATICS TRUST

THURSDAY 4 AUGUST 2011

MIDDLE PRIMARY DIVISION COMPETITION PAPER

AUSTRALIAN SCHOOL YEARS 3 AND 4
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.
3. Diagrams are NOT drawn to scale. They are intended only as aids.
4. There are 25 multiple-choice questions, each with 5 possible answers given 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 State or Region 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 Ssheet (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.

Middle Primary Division

Questions 1 to 10, 3 marks each

1. Mike buys a can of 4 tennis balls for \$2. How much does each tennis ball cost?

(A) 25c (B) 50c (C) \$1 (D) \$4 (E) \$8

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2. The number 8000 is the same as

(A) 800 tens (B) 800 units (C) 80 tens (D) 80 units (E) 8 hundreds

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3. One side of a square is 6 cm long. What is the perimeter, in centimetres, of this square?

(A) 6 (B) 18 (C) 24 (D) 26 (E) 30

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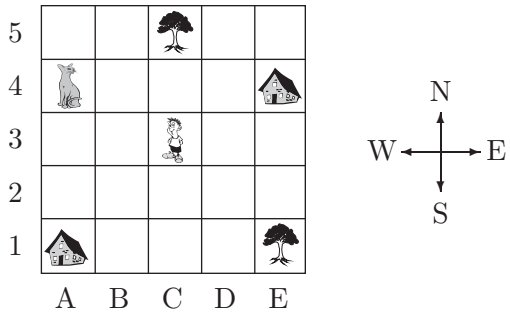
4. Imagine you are standing on the square which is in column C and row 4.



What can you see directly to the east?

(A)  (B)  (C)  (D)  (E) nothing

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5. What number is halfway between 103 and 113?

(A) 107 (B) 110 (C) 105 (D) 109 (E) 108

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6. Ben cuts three oranges into quarters for the soccer team to eat at half-time. How many quarters are there?

(A) 3 (B) 6 (C) 7 (D) 12 (E) 16

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7. Mrs Harris asked five of her Year 4 children to record their birthdates in a table as shown below.

Fred	11/4/01
Sally	1/4/01
Joe	1/8/01
Alf	3/2/02
Donna	16/3/02

Which child is the eldest?

(A) Sally (B) Fred (C) Joe (D) Alf (E) Donna

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8. Gina is 11 years old and her sister Bev is 8 years old. Their mum is twice as old as the sum of their ages. How old is their mum?

(A) 3 (B) 19 (C) 27 (D) 30 (E) 38

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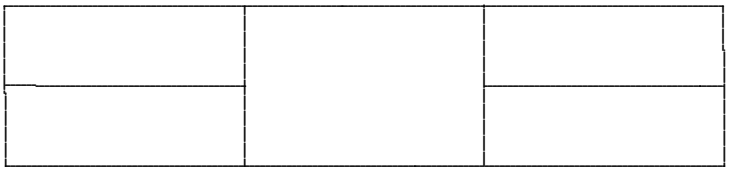
9. How many rectangles of any size are in this diagram?



(A) 11 (B) 10 (C) 9 (D) 8 (E) 6

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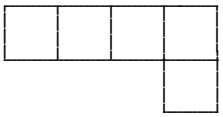
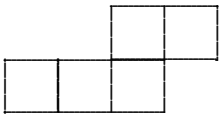
10. I can buy 10 L of petrol for \$15. How much do I pay for 40 L?

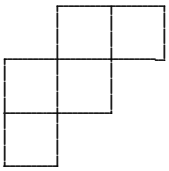
(A) \$40 (B) \$55 (C) \$60 (D) \$65 (E) \$80

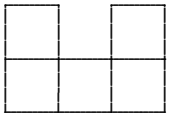
Questions 11 to 20, 4 marks each

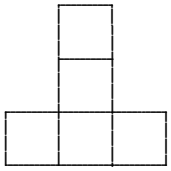
11. Which of the following is **not** a net for an open top box?

(A) 

(B) 

(C) 

(D) 

(E) 

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12. Peter and Sue travelled from Cairns to Brisbane by aeroplane. Their flight took 130 minutes. If they left Cairns at 8:10 am, what time did they arrive in Brisbane?

(A) 10:10 am (B) 9:40 am (C) 10:40 am (D) 9:30 am (E) 10:20 am

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13. Which one of the following statements is true?

(A) If you add two odd numbers you always get an odd number.
(B) If you multiply two odd numbers you always get an even number.
(C) If you add an odd and an even number you always get an even number.
(D) If you multiply an odd and an even number you always get an even number.
(E) If you multiply two even numbers you always get an odd number.

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14. Zac bought four medium pizzas with \$20 and received \$3.60 in change. How much would two pizzas have cost him?

(A) \$4.10 (B) \$5.00 (C) \$7.20 (D) \$8.20 (E) \$10.00

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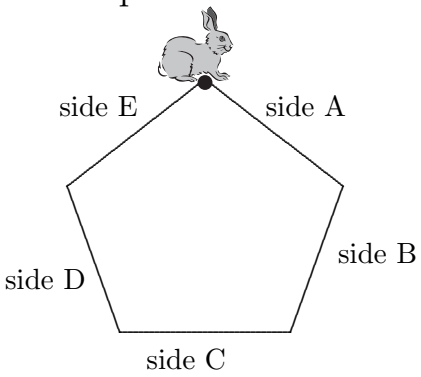
15. Raelene the rabbit started at the dot and travelled clockwise around the regular pentagon with equal sides.



What side was she on when she had travelled $\frac{3}{4}$ of the distance around the pentagon?

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

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16. How many even two-digit numbers are there where the sum of the digits is 5?

(A) 0 (B) 2 (C) 3 (D) 4 (E) 5

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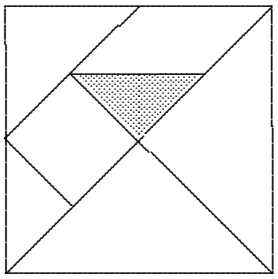
17. The diagram shows a 7-piece tangram puzzle.



What is the area, in square centimetres, of the shaded part if the whole puzzle is a square with side 8 cm?

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

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18. On a school trip, we took 6 tents for 18 students. Each tent sleeps either two or four students. How many of the tents were for two students?

(A) 1 (B) 2 (C) 3 (D) 4 (E) 5

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19. The annual parents' meeting is held on the 199th day of the calendar year. In which month will the meeting be held in 2011?

(A) April (B) May (C) June (D) July (E) August

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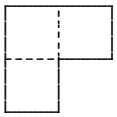
20. The following tile is made from three unit squares.

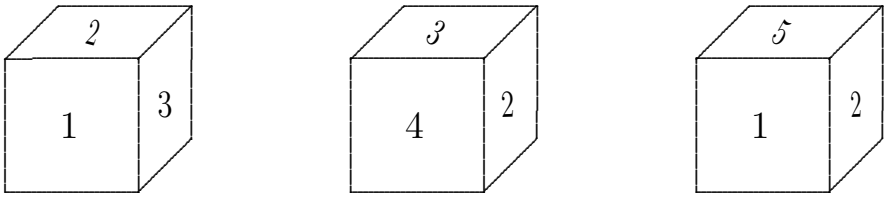


What is the area, in square units, of the smallest square which can be made from tiles of this shape?

(A) 16 (B) 25 (C) 36 (D) 64 (E) 81

Questions 21 to 25, 5 marks each

21. A cube has each of the numbers from 1 to 6 on its faces. The cube is shown in three different positions.



What number is on the opposite face to the face numbered 6?

(A) 1 (B) 2 (C) 3 (D) 4 (E) 5

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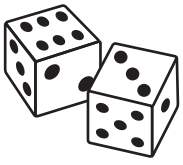
22. In a number game you throw 2 six-sided dice to get 2 numbers from 1 to 6. You then choose one instruction card from the three shown below to find out what to do with the two numbers.



Add the two numbers	Multiply the two numbers
Divide one by the other	

How many different whole number answers are possible in this game?

(A) 13 (B) 15 (C) 17 (D) 20 (E) 21

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23. In the following addition, some of the digits are missing.

$$\begin{array}{cccc} & \square & 9 & \square \\ + & \square & 8 & 7 \\ \hline \square & 0 & \square & 2 \end{array}$$

The sum of the missing digits is

(A) 23 (B) 19 (C) 21 (D) 18 (E) 24

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24. The ages of a family of six add up to 106 years. The two youngest are 3 and 7. What would the family's ages have added up to five years ago?

(A) 74 (B) 76 (C) 78 (D) 79 (E) 96

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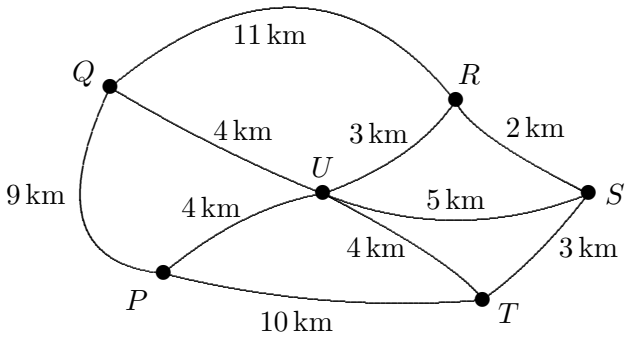
25. Six towns labelled P, Q, R, S, T and U in the diagram are joined by roads as shown.



Starting at P, George the postman visits each town without returning to P. He wants to save time by travelling the shortest distance. How many kilometres will he need to drive?

(A) 19 (B) 20 (C) 21 (D) 22 (E) 23

For questions 26 to 30, shade the answer as a whole number from 0 to 999 in the space provided on the answer sheet.

Question 26 is 6 marks, question 27 is 7 marks, question 28 is 8 marks, question 29 is 9 marks and question 30 is 10 marks.

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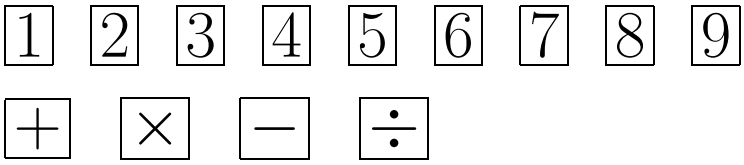
26. In a card game, there are 9 single-digit cards and 4 operation cards as shown.



A player must use 4 digit cards and 3 operation cards. What is the largest whole number which can be made if an operation card must be placed between each of the single-digit cards?

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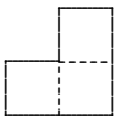
27. A tiler has been given an odd-shaped tile to work with. It is made up from 3 squares, each with 10 cm sides.



If he had 5 of these tiles and placed them next to each other to form a shape, what would be the smallest perimeter, in centimetres, that he could make?

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28. Jacqui has \$200 in her purse in \$5, \$10 and \$20 notes. She has 20 of these notes altogether. If she has more \$20 notes than \$10 notes, how many \$5 notes does she have?

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29. Mary has 62 square blue tiles and a number of square red tiles. All tiles are the same size. She makes a rectangle with red tiles inside and blue tiles on the perimeter. What is the largest number of red tiles she could have used?

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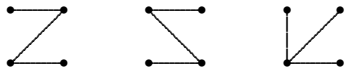
30. Carly is writing a fantasy novel which includes inventing a new language. She decides to base her alphabet on letters formed from three straight lines joining four dots arranged in a square where each line joins two dots. Each letter goes through all four dots and can be drawn without removing the pencil from the paper, (you may retrace a line). Three such letters are shown.



How many different letters can she have in her alphabet?

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