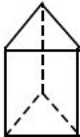# THE NEWCASTLE PERMANENT

PRIMARY MATHEMATICS COMPETITION
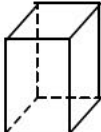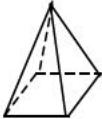
Wednesday, 31 August, 2011

Time allowed: 45 minutes

Instructions:

1. When asked by your teacher, open this booklet and check to see that there are 35 questions.

2. Calculators, rulers, geometrical instruments or other aids are **NOT** permitted.

3. **NO** working is to be shown on your answer sheet. Working paper will be supplied by your teacher if required.

4. All answers **MUST** be recorded in **PENCIL** on your answer sheet. (a **B** pencil or softer)

5. When your teacher gives the signal, begin working on the problems. You have 45 minutes working time.

6. Marks will **NOT** be deducted for incorrect answers.

7. Make sure that you complete the sections on the answer sheet for your name, gender, year, five digit Mathematics Competition code and school name.

SECTION A

Each correct answer in this section is worth 2 marks.

1. Twenty-three thousand four hundred and six is:

   (A) 2346   (B) 23 046   (C) 23 406   (D) 230 406

2. When counting up by tens from 1500, the next two numbers are:

   (A) 1501, 1502   (B) 1510, 1520
   (C) 1600, 1700   (D) 2500, 3500

3. 43 218 +
      1 904
   _____

   The answer is:

   (A) 41 314   (B) 44 122
   (C) 45 112   (D) 45 122

4. In the set of numbers 4251, 4125, 4521, 4215, the second largest number is:

   (A) 4251   (B) 4125   (C) 4521   (D) 4215

5. The Roman Numeral CXLII represents

   (A) 42   (B) 62   (C) 142   (D) 162

6. The diagram that represents a triangular prism is:

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

7. When 308 is divided by 4 the answer is:

   (A) 72   (B) 77   (C) 1202   (D) 1232

8. Brooke receives $4.25 change when she pays for her lunch with a $20 note. How much did her lunch cost?

   (A) $15.75   (B) $15.85   (C) $17.75   (D) $16.85

9. The correct numeral for $(4 \times 10^3) + (5 \times 10^2) + 3$ is:

   (A) 453   (B) 4053   (C) 4503   (D) 40503

10. Erin gets in a lift on the twelfth floor. The lift goes down three floors and stops. The lift then goes down five more floors, stops and Erin gets out of the lift. On what floor does Erin get out of the lift?

    (A) 3rd floor   (B) 4th floor   (C) 9th floor   (D) 20th floor

11. If $10.0003 \times \square = 10\,000.3$, the number that should replace $\square$ is:

    (A) 0.001   (B) 10   (C) 100   (D) 1000

12. How many $1\,\text{cm} \times 1\,\text{cm} \times 1\,\text{cm}$ blocks are needed to completely fill the rectangular prism shown in the diagram?
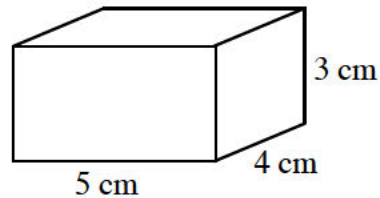

    (A) 94   (B) 60   (C) 48   (D) 12

13. Michael scored 20 out of 25 in his mathematics test. His percentage score is:

    (A) 20%   (B) 45%   (C) 75%   (D) 80%

14. In the year 2006, the 19th of May was a Friday. The date of the Friday, three weeks later, was:

    (A) 7th June   (B) 8th June   (C) 9th June   (D) 10th June

15. The value of $1.9 + 0.19$ is:

    (A) 1.71   (B) 1.919   (C) 1.99   (D) 2.09

SECTION B
Each correct answer in this section is worth 3 marks.

16. The sum of a right-angle and an acute angle must be:

    (A) an obtuse angle   (B) a reflex angle
    (C) an acute angle   (D) a straight angle

17. The average of 4, 4, 5, 5 and 5 is:

    (A) 4   (B) 4.3   (C) 4.6   (D) 5

18. The time on a digital clock reads 2:22. How many minutes would it be before all the digits are again the same?

    (A) 71   (B) 91   (C) 111   (D) 222

19. Seven blocks are glued together as shown in the diagram
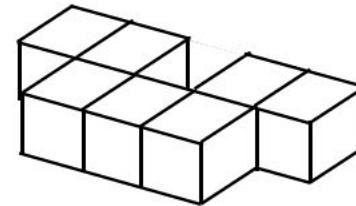
    How many faces of these blocks are glued together?

    (A) 7   (B) 8   (C) 10   (D) 12

20. A machine produces 150 items in one minute. The number of items produced in 10 seconds is:

    (A) 10   (B) 15   (C) 25   (D) 30

21. When calculating 25×81, Michael first calculated 100×81. From this result, to obtain the correct answer he must:

    (A) Divide by 4   (B) Multiply by 4
    (C) Subtract 75   (D) Divide by $\frac{1}{4}$

22. A car travels at 75 kilometres per hour. How far does it travel in 80 minutes?

(A) 75 km (B) 80 km (C) 90 km (D) 100 km

23. In a survey, 80 students were asked, "What is your favourite pet?" The results were recorded and then graphed. In the graph, the column representing 'Dog' has been left out. The number of students who selected Dog as their favourite pet was:
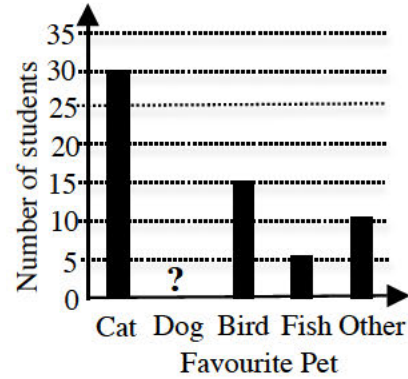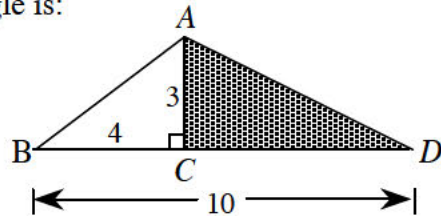

(A) 15 (B) 20 (C) 25 (D) 30

24. The product of three different whole numbers is 96. The largest possible sum of these three whole numbers is:

(A) 21 (B) 36 (C) 51 (D) 98

25. In the diagram the lengths of sides are: $AC = 3$ cm, $BC = 4$ cm and $BD = 10$ cm.
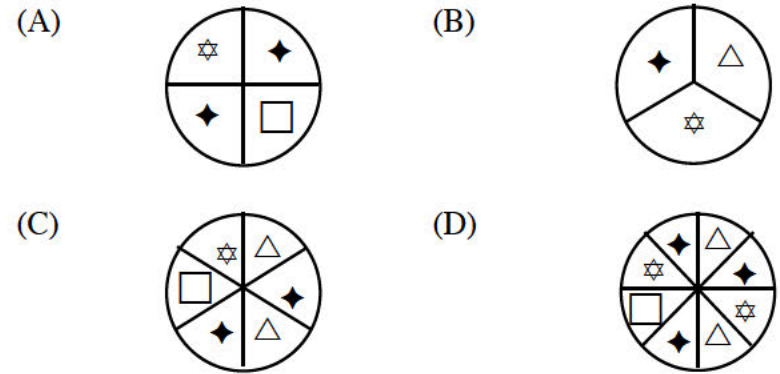The area of the shaded triangle is:

(A) 6 cm^2 (B) 9 cm^2 (C) 12 cm^2 (D) 18 cm^2

SECTION C
Each correct answer in this section is worth 4 marks.

26. Each of the following spinners is divided into equal parts. With which of the spinners are you **MOST LIKELY** to spin a ✦ ?

(A)   (B)

(C)   (D)

27. 3.6 cm – 0.6 mm equals:

(A) 3 mm (B) 30 mm (C) 36 mm (D) 35.4 mm

28. $78 is divided among three students so that for each $1 that Tran gets, Amy gets $2 and Jemima gets $3. The amount Amy gets is:

(A) $6 (B) $13 (C) $26 (D) $39

29. Joseph has 22 metres of garden fencing and makes a rectangular garden using all the fencing. If each side of his garden is a whole number of metres, then the number of different ways he can make his garden is:

(A) 4 (B) 5 (C) 6 (D) 7

30. The numbers 1, 2, 3 and 4 are each used to make 2 two-digit numbers. If you multiplied these two numbers together, the smallest possible result is:
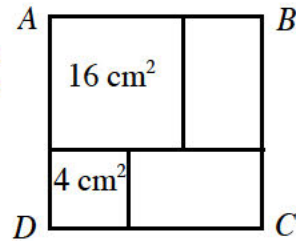
(A) 212 (B) 312 (C) 322 (D) 408

31 A star is made by overlapping two identical equilateral triangles, as shown. The entire star has an area of 36 cm². The area of the shaded region is:
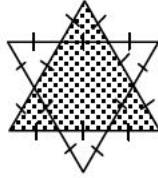
(A) 18 cm²   (B) 24 cm²   (C) 27 cm²   (D) 30 cm²

32 *ABCD* is a square that is made up of two squares with area 4 cm² and 16 cm² and two identical rectangles. The area, in cm², of the square *ABCD* is:

16 cm²

4 cm²

(A) 25   (B) 36   (C) 64   (D) 400

33. In the diagram, a 4 × 4 grid is to be filled so that each of the digits 1, 2, 3 and 4 appears in each row and each column. The 4 × 4 grid is divided into four smaller 2 × 2 squares. Each of these 2 × 2 squares contains each of the digits 1, 2, 3 and 4. What digit replaces *N*?

			4
	N		
	2		
1		3	

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

PLEASE TURN OVER FOR QUESTIONS 34 AND 35.
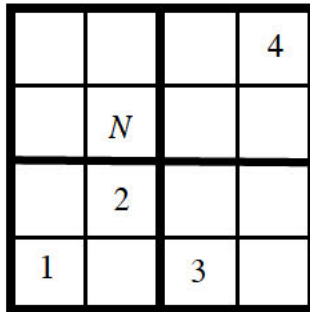
34. *K, L, M* and *N* are towns joined by one-way roads as shown in the diagram.

K   *L*   *M*   *N*
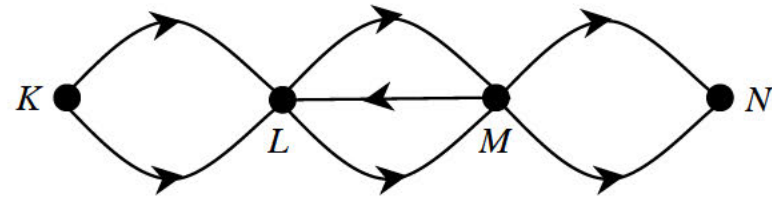
If no road can be used more than once in a single journey, *but towns may be visited more than once*, the number of different routes from *K* to *N* is:

(A) 7   (B) 12   (C) 16   (D) 24

35. How many zeros are at the end of the number given by the product of all the integers from 10 to 49 inclusive as written below:
$10 \times 11 \times 12 \times 13 \times 14 \times 15 \times 16 \times \ldots \times 49$?

(A) 4   (B) 5   (C) 8   (D) 9

THERE ARE NO MORE QUESTIONS.