THE NEWCASTLE PERMANENT

PRIMARY MATHEMATICS COMPETITION

Wednesday, 29 August, 2012
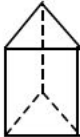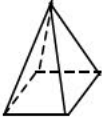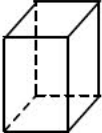
Time allowed: 45 minutes

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. Nineteen thousand and thirty seven is:

    (A) 1937   (B) 19 037   (C) 19 307   (D) 190 307

2. The value of $6 + 5 - 4 + 3 - 1$ is:

    (A) 3   (B) 5   (C) 7   (D) 9

3. $35\,417 - 2\,334 = $ ___   The answer is:

    (A) 32 083   (B) 33 083
    (C) 33 183   (D) 37 751

4. Jamie pays $8.75 for a USB drive. How much change will she receive if she pays with a $20 note?

    (A) $11.25   (B) $10.25   (C) $9.25   (D) $1.25

5. What is the average of 49, 49, 49 and 53?

    (A) 200   (B) 51   (C) 50   (D) 49

6. Counting down by tens from 1400, the next two numbers are:

    (A) 1410, 1420   (B) 1399, 1398
    (C) 1390, 1380   (D) 1300, 1200

7. The diagram that represents a square prism is:

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

8. If $\square = (5 \times 10^3) + (3 \times 10^2) + (4 \times 10)$, then

    (A) $\square = 5340$ (B) $\square = 5304$
    (C) $\square = 5034$ (D) $\square = 534$

9. For the rectangle *CDEF*, which statement is **TRUE**?
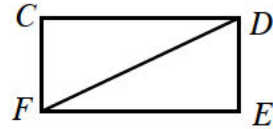
   (A) *FD* is a radius.   (B) *FD* is an axis of symmetry.

   (C) *FD* is a diameter.   (D) *FD* is a diagonal.
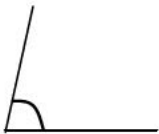
10. Which statement is **TRUE**?

   (A) A cube has 12 edges.
   (B) A cube has 8 faces.
   (C) A cube has 6 edges.
   (D) A cube has 12 faces.

11. $(5 \times 37) + (5 \times 33)$ is the same as:

   (A) 5×70 (B) 5×35 (C) 5×37 (D) 10×70

12. Another way of writing 37 tenths is

   (A) 0.37   (B) 3.7   (C) 37   (D) 370

13.   The best estimate for the size of this angle is:

   (A) 45°   (B) 80°   (C) 90°   (D) 100°

14. If $20.007 \times \square = 2000.7$, the number that should replace $\square$ is:

   (A) 1   (B) 10   (C) 100   (D) 1000

15. Which statement is **FALSE**?

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

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

16. A cyclist is travelling at a constant 24 km/h. How many kilometres will he travel in 10 minutes?

   (A) 1.2   (B) 2.4   (C) 4   (D) 240

17. Music CDs are on sale for 25% off the marked price. Eleanor pays $12 for a CD on sale. How much did she save?

   (A) $3   (B) $4   (C) $6   (D) $16

18. $\frac{1}{3} \times 5$ is the same as:

   (A) $\frac{3}{5}$ (B) $1\frac{2}{3}$ (C) $2\frac{2}{3}$ (D) $5 + \frac{1}{3}$

19. When read backwards, the numerals in the date 21.8.12 read the same as when read frontwards. Because of this we say that 21 August, 2012 has a palindromic date. Which of the following days does **NOT** have a palindromic date?

   (A) 21st December, 2012   (B) 21st November, 2012

   (C) 21st September, 2012   (D) 21st July, 2012

20. On the radio, the announcer says, "Good morning. It is 25 to 8." The time that you should see on your digital clock is:

   (A) 20:25   (B) 19:35   (C) 8:25   (D) 7:35

21. How many numbers between 32 and 86 are multiples of both 2 and 3 but not a multiple of 4?
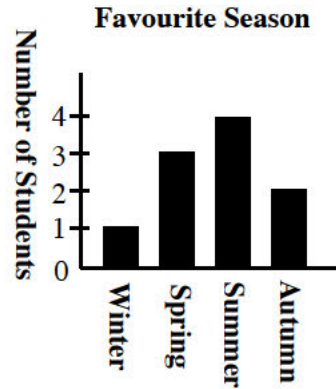
   (A) 4   (B) 5   (C) 8   (D) 9

22. Two whole numbers when multiplied give an answer of 90. The difference between the numbers could be:

(A) 15   (B) 9   (C) 7   (D) 3

23. Students were surveyed about their favourite season of the year. The results are shown in the bar graph. What percentage of the 10 students surveyed chose Summer?

(A) 10   (B) 20

(C) 30   (D) 40

Favourite Season

24. A recipe needs $3\frac{1}{2}$ cups of cornflakes. If you only make half the recipe, how many cups of cornflakes will you need?

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

25 Trains to Sydney leave Newcastle station at 8:18 am, 9:25 am and 10:25 am. If I arrived at Newcastle station at 23 minutes to 9 in the morning, how long would I have to wait until the next train left for Sydney?

(A) 12 min   (B) 19 min   (C) 48 min   (D) 52 min

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

26. A square has a perimeter of 24 cm. The area of the square in cm^2 is:

(A) 576   (B) 144   (C) 36   (D) 6

27. At the movies, a choc-top ice cream costs $3 and a box of popcorn costs $5. Kate and her friends spend $38 at the movies on choc-tops and popcorn. Which statement tells you what they bought?

(A)   5 choc-tops and 4 boxes of popcorn
(B)   7 choc-tops and 3 boxes of popcorn
(C)   4 choc-tops and 5 boxes of popcorn
(D)   6 choc-tops and 4 boxes of popcorn

28. When trialling for the 1500 metre race for the London Olympics, an athlete records the following times in three races: 3 min 58 sec, 3 min 59 sec and 4 min 6 sec. The average of these three times is:

(A) 3 min 59 sec   (B) 4 min   (C) 4 min 1 sec   (D) 4 min 2 sec

29. A lift in a building can carry a total mass of 1500 kg. Assuming the average mass of the people the lift will carry is never greater than 90kg, what is the maximum number of people that this lift can be registered to carry?

(A) 17   (B) 16   (C) 15   (D) 14

30. Which of the following expressions is the same as 5?

(A) $3^2 - 2^2$ (B) $(3 + 2)^2$ (C) $2^3 - 1$ (D) $3 + 2^2$

31. 254 mm – 1.3 cm =

(A) 24.1 mm   (B) 1.24 cm   (C) 241 mm   (D) 252.7 mm

32. Squares *ABCD* and *BEFC* are equal in area. They are placed next to each other so that *BC* is the shared side. *G* is the midpoint of *EF*. A straight line is drawn from *D* to *G* and another straight line is drawn from *B* to *G*. The fraction of the two squares shaded is:
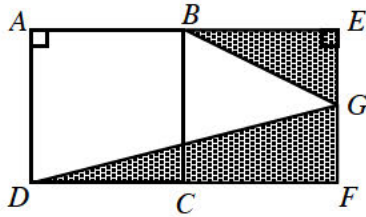
(A) $\dfrac{1}{4}$ (B) $\dfrac{3}{8}$ (C) $\dfrac{5}{8}$ (D) $\dfrac{3}{4}$

33. A triangular prism is placed on a rectangular prism, as shown in the diagram. The volume of the combined structure, in cm³, is:


(A) 150   (B) 180   (C) 210   (D) 240

PLEASE TURN OVER FOR QUESTIONS 34 AND 35.
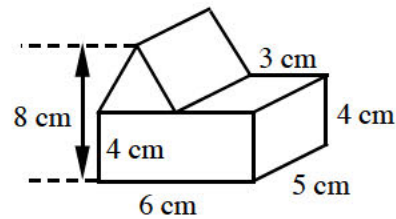
34. Goldbach proposed that every odd number greater than 7 can be written as the sum of 3 prime numbers. Which one of the following statements is an example of this proposal?

(A) $269 = 61 + 81 + 127$
(B) $271 = 79 + 91 + 101$
(C) $273 = 87 + 89 + 97$
(D) $275 = 59 + 89 + 127$

35. From the figure shown, three of the nine squares are to be selected. Each of the three selected squares must share a side with at least one of the other two selected squares. The number of ways that this can be done is:
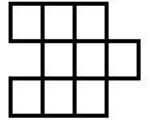
(A) 14   (B) 15   (C) 16   (D) 17

THERE ARE NO MORE QUESTIONS.