THE NEWCASTLE PERMANENT

PRIMARY MATHEMATICS COMPETITION

Wednesday, 23 August, 2017

Time allowed: 45 minutes

Instructions:

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

2. Calculators, electronic devices, 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 darker).

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. How many edges does this solid have?

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

2. The mass of a pencil is closest to:

   (A) 0.1 g (B) 10 g (C) 100 g (D) 1 kg

3. The number of litres in 8 500 millilitres is:

   (A) 0.85 (B) 8.5 (C) 85 (D) 850

4. Each angle in an equilateral triangle is:

   (A) 30° (B) 45° (C) 60° (D) 90°

5. A cardboard box is 12 cm long, 6 cm wide and 5 cm high. Its volume is:

   (A) 23 cm^3 (B) 90 cm^3 (C) 350 cm^3 (D) 360 cm^3

6. The largest 2 digit prime number is:

   (A) 99 (B) 97 (C) 95 (D) 93

7. The triangular numbers are 1, 3, 6, 10, and so on. What is the sixth triangular number?

   (A) 36 (B) 21 (C) 18 (D) 15

8. Which of these fractions is less than $\frac{1}{2}$?

   (A) $\frac{5}{12}$ (B) $\frac{5}{10}$ (C) $\frac{5}{8}$ (D) $\frac{5}{6}$

9. $376 \times 17 =$

  (A) 3 022   (B) 3 008   (C) 6 392   (D) 6 406

10. Which number is 27 less than 10 000?

  (A) 973   (B) 1 973   (C) 9 073   (D) 9 973

11. $4 \times 17 \times 25 =$

  (A) 1 700   (B) 170   (C) 93   (D) 46

12. How many minutes are there between 11:40 pm and 1:15 am the next day?

  (A) 35   (B) 75   (C) 80   (D) 95

13. $2\frac{3}{5} + \frac{4}{5} =$

  (A) $3\frac{7}{10}$ (B) $3\frac{2}{5}$ (C) $2\frac{7}{10}$ (D) $2\frac{2}{5}$

14. In a triangle one angle is 70° and another is 80°. What type of triangle must it be?

  (A) equilateral   (B) scalene
  (C) right angled   (D) isosceles

15. 20% of $12 is:

  (A) $0.24   (B) $0.60   (C) $2.40   (D) $6.00

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

16. The class made a large number line in the playground at school. Isaac stood at 3 and Mia stood at −1. Mia was midway between Isaac and Raj.
Raj was standing at:

  (A) −5   (B) −4   (C) 1   (D) 7

17. The point $(3, 2)$ is shown on the number plane. Which of the following correctly explains how to move from $(3, 2)$ to $(-1, -3)$?
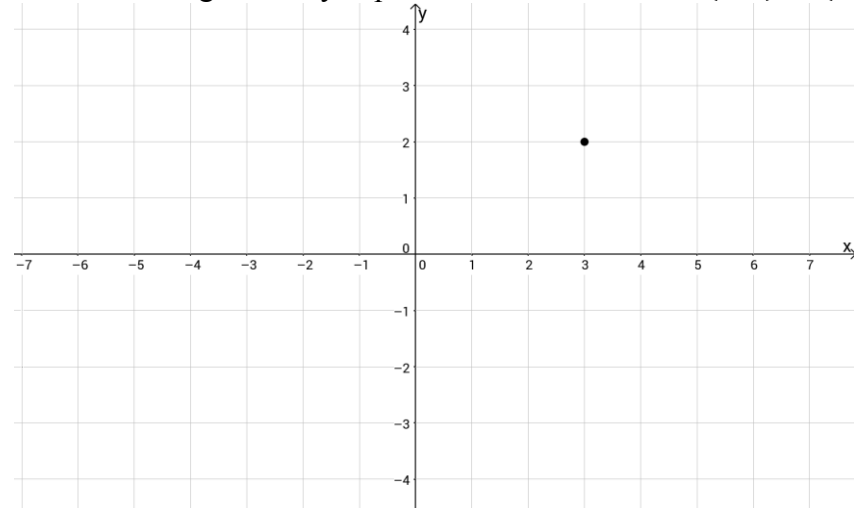
  (A) left 2, down 4   (B) left 4, down 3
  (C) left 3, down 5   (D) left 4, down 5

18. A milkshake costs $5 and an ice-block costs $3.
Tahlia buys 1 milkshake and 2 ice-blocks. She pays with a $20 note. Which of the following shows the change that Tahlia receives?

  (A) $20 - 5 + 2 \times 3$ (B) $20 - (5 + 2 \times 3)$
  (C) $20 - (5 + 2) \times 3$ (D) $20 - 5 + (2 \times 3)$

19. The number 51 can be written as $(9 \times 5) + (3 \times 2)$.
How many ways are there of writing 51 as $(\square \times 5) + (\triangle \times 2)$ where $\square$ and $\triangle$ are positive whole numbers?

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

20. Lachlan has $7.20. The money is made up of 50 cent, 20 cent and 10 cent coins only. He has the same number of each type of coin. How many 20 cent coins does he have?

  (A) 36   (B) 11   (C) 9   (D) 1

21. $(8.6 + 3.5) \times 2 =$

    (A) 14.1   (B) 15.6   (C) 22.2   (D) 24.2

22. Two rectangles are joined together as shown in the diagram, with all lengths given in metres (m). What is the perimeter of the shape?
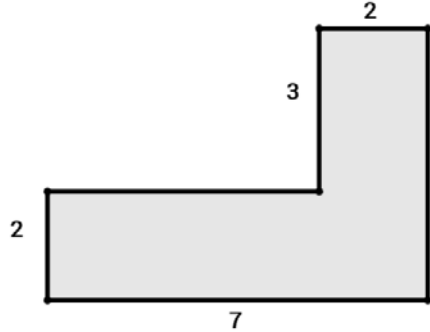

    (A) 14 m   (B) 20 m   (C) 24 m   (D) 84 m

23. Last year the school basketball team averaged 30 points per game. So far this year they have played 20 games with an average of 31 points per game. They have one more game to play. How many points must they score in this game in order to be equal to or better than last year's average?

    (A) 31 or more   (B) 30 or more
    (C) 20 or more   (D) 10 or more

24. 10 cards are numbered from 1 to 10. In a chance experiment one card is chosen and its number is read. Which of the following has the greatest probability?

    (A) it is a factor of 24   (B) it is an even number
    (C) it is a multiple of 5   (D) it is less than 4

25 Which of the following has the greatest **increase** in temperature?

    (A) from 12° to 20°   (B) from −2° to 7°
    (C) from −10° to −3°   (D) from 12° to 2°

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

26. The diagram shows the floor plan of a small house. It also shows the area of some rooms. The bedroom and laundry are **square-shaped** rooms. What is the area of the kitchen?
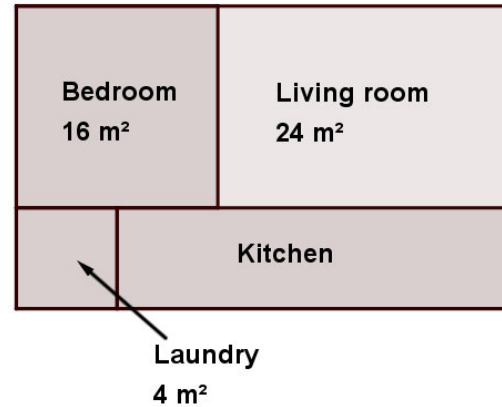
    (A) 16 m^2 (B) 20 m^2 (C) 44 m^2 (D) 60 m^2

27. 737 is a 3 digit palindromic number (it is the same number if you reverse the digits). How many 3 digit palindromic numbers are divisible by 15?

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

28. N stands for a particular whole number, and the following clues are given:
    - N is greater than 10
    - When N is divided by 8 there is a remainder of 1
    - When N is divided by 9 there is a remainder of 1
    The smallest possible value of N is:

    (A) greater than 100   (B) between 70 and 100
   (C) between 50 and 70   (D) between 11 and 50

29. Lunch time at school is 50 minutes. One day during lunch two teachers, Mr B Smart and Mrs B Good, recorded how they used their time. This is shown in the column graph below.
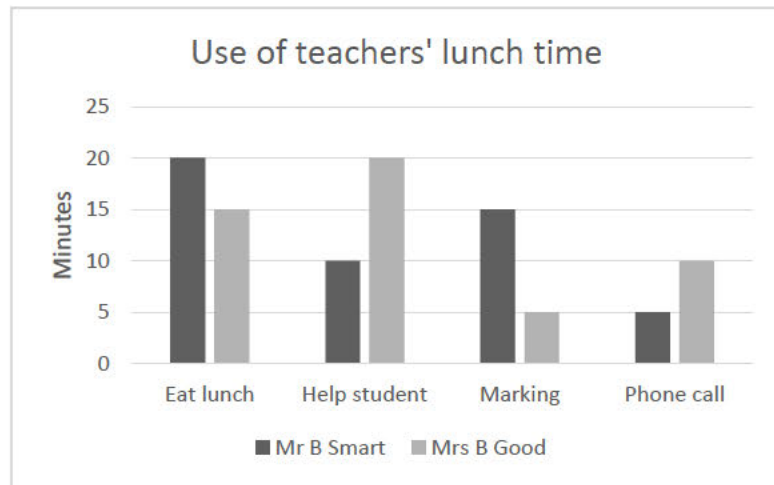
What percentage of their combined time was spent helping students?

(A) 10%   (B) 15%   (C) 20%   (D) 30%

30. Each term in a sequence of numbers is found by halving the previous number and then subtracting 4. The third number in the sequence is 16. So the sequence is □, Δ, 16, and so on.
What is the first number?

(A) 1   (B) 4   (C) 40   (D) 88

31. What percentage is $\frac{1}{8}$ of $\frac{1}{2}$?

(A) 4%   (B) $6\frac{1}{4}$%   (C) 25%   (D) 400%

32. If P is any positive even number and Q is half of P, which of the following gives the smallest answer?

(A) $P + Q$ (B) $P - Q$ (C) $P \div Q$ (D) $Q \div P$

33. Match sticks are used to make rectangular patterns. Note that 31 match sticks are needed to make a 1×10 pattern. How many match sticks are needed to make a 10×10 pattern?

1 x 10

2 x 10

3 x 10
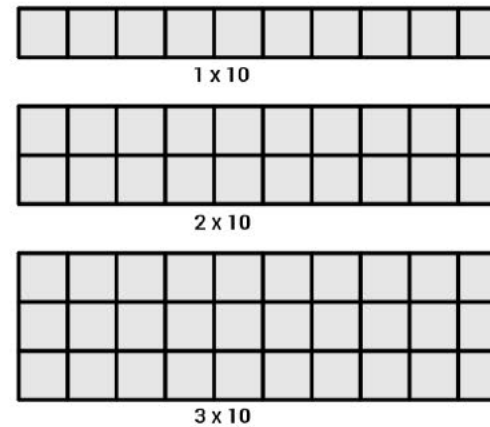
(A) 210   (B) 220   (C) 310   (D) 321

34. At the zoo there is a certain number of gorillas, twice as many chimpanzees and three times as many monkeys as gorillas. Every day each gorilla eats 40 bananas, each chimpanzee eats 20 bananas and each monkey eats 10 bananas. The total number of bananas eaten every day is 770. How many gorillas are there at the zoo?

(A) 7   (B) 9   (C) 10   (D) 11

35. When full, a spa pool contains 3000 litres of water. It is emptied, cleaned and then it needs to be refilled. Water is pumped in at the rate of 20 litres per minute. However, after 1 hour, a leak develops and continues at the rate of 2 litres per minute. What is the total time taken to fill the pool from empty to full?

(A) 2 hours   (B) 2 hours 30 minutes
(C) 2 hours 40 minutes   (D) 3 hours

THERE ARE NO MORE QUESTIONS.