



**THE NEWCASTLE PERMANENT  
PRIMARY MATHEMATICS COMPETITION**

**Wednesday 22 August 2018**

**Time allowed: 45 minutes**

**Instructions:**

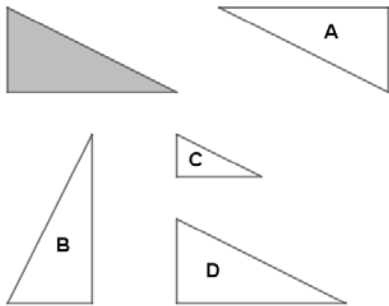
1. When asked by your teacher, open this booklet and check that there are 35 questions.
2. Calculators, electronic devices, rulers, geometrical instruments or other aids are **NOT** permitted.
3. **NO** working is to be shown on your answer sheet. Working paper will be supplied by your teacher if required.
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, school name and five digit Mathematics Competition code.**

**SECTION A**

Each correct answer in this section is worth 2 marks.

1. If you choose one day of the week, what is the chance that day will start with the letter 'S'?  
(A)  $\frac{1}{7}$       (B)  $\frac{2}{7}$       (C)  $\frac{2}{5}$       (D) 2
2. Thirty thousand and thirty five is written as:  
(A) 3 035      (B) 3 305      (C) 30 035      (D) 30 305
3. The number of millimetres in 7.2 metres is:  
(A) 7 200      (B) 720      (C) 0.072      (D) 0.0072
4.  $3 + 5 \times 2 =$   
(A) 10      (B) 13      (C) 16      (D) 30
5. What is the area of a rectangle 10 cm long and 6.5 cm wide?  
(A)  $65 \text{ cm}^2$       (B)  $60.5 \text{ cm}^2$       (C)  $33 \text{ cm}^2$       (D)  $16.5 \text{ cm}^2$
6.  $2.505 \div 5 =$   
(A) 0.101      (B) 0.501      (C) 0.51      (D) 2.101
7. The temperature at sunset was  $4^\circ$ , and at sunrise the next day it was  $-3^\circ$ . Which of the following describes how the temperature changed during the night?  
(A) decreased by  $1^\circ$       (B) increased by  $1^\circ$   
(C) decreased by  $7^\circ$       (D) increased by  $7^\circ$
8. Which of the following is true for **all** quadrilaterals?  
(A) all angles are right angles  
(B) the sum of the angles is  $180^\circ$   
(C) the sum of the angles is  $360^\circ$   
(D) all angles are acute angles

9.  $408 \times 52 =$   
 (A) 21 216 (B) 3 216 (C) 2 856 (D) 2 496
10. Which of the following is a true statement:  
 (A) 3 is less than  $-5$  (B)  $-4$  is less than  $-7$   
 (C)  $4.17$  is less than  $4\frac{1}{10}$  (D)  $-9$  is less than  $-5$
11. The diagram shows a shaded triangle and four other unshaded triangles, labelled as A, B, C, D. Which of the triangles is formed by **translation** of the shaded triangle?

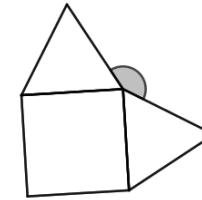


- (A) A (B) B (C) C (D) D
12. What is the time 80 minutes before 1.30 pm?  
 (A) 12.10 pm (B) 12.50 pm (C) 2.50 pm (D) 3.00 pm
13.  $10 \times 8 \times 6 \times 4 \times 2 \times 0 =$   
 (A) 38400 (B) 3840 (C) 30 (D) 0
14. Which of the following solids has 5 faces and 5 vertices?  
 (A) triangular prism (B) triangular pyramid  
 (C) rectangular prism (D) rectangular pyramid
15. The lowest common multiple of 8 and 12 is:  
 (A) 4 (B) 20 (C) 24 (D) 96

## SECTION B

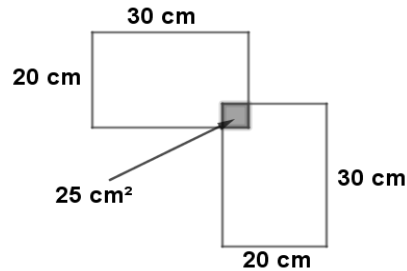
Each correct answer in this section is worth 3 marks.

16. The shape in the diagram is made up of one square and two equilateral triangles. What is the size of the shaded angle?



- (A)  $120^\circ$  (B)  $150^\circ$  (C)  $210^\circ$  (D)  $240^\circ$
17. What is the difference between the product of 12 and 3 and the sum of 8 and 2?  
 (A) 56 (B) 46 (C) 26 (D) 25
18. It is estimated that there are about 100 000 spiders per hectare in green areas. On that basis, how many spiders would be expected in a rectangular park 80 metres long and 50 metres wide?  
 (A) 40 000 (B) 400 000  
 (C) 4 000 000 (D) 40 000 000
19. Each bag of cement weighs 20 kg. Samantha's trailer has a load limit of 1.2 tonnes. How many bags of cement can Samantha safely put in her trailer?  
 (A) 6 (B) 24 (C) 60 (D) 240
20. 2.1 million is made up of the digits 2 and 1 followed by how many zeros?  
 (A) 8 (B) 7 (C) 6 (D) 5
21. The number of minutes in 30% of 2 hours is:  
 (A) 6 (B) 12 (C) 36 (D) 60

22. Two rectangles, each 30 cm by 20 cm, are overlapped as shown in the diagram. The area of the overlapping square is  $25 \text{ cm}^2$ . What is the perimeter of the shape?



- (A) 180 cm (B) 190 cm (C) 200 cm (D) 220 cm
23. A tenpin bowling alley advertises “buy 3 games at the usual price and get a fourth game for \$1.80”. For Sara’s birthday party her parents paid \$59.40, for which they received 12 games. What is the usual price of a game?
- (A) \$4.95 (B) \$6 (C) \$6.40 (D) \$6.60
24.  $2\frac{3}{4} + 1\frac{5}{8} =$
- (A)  $\frac{44}{32}$  (B)  $3\frac{3}{8}$  (C)  $3\frac{8}{12}$  (D)  $4\frac{3}{8}$
25. Patricia wants to make an unusual 6-sided die. She wants the chance of getting a 5 to be  $\frac{1}{2}$ , and the chance of getting an even number to be  $\frac{1}{3}$ . Which of the following sets of numbers could be used on this die?
- (A) 1, 2, 3, 4, 5, 5 (B) 1, 2, 4, 5, 5, 6  
 (C) 2, 2, 4, 5, 5, 5 (D) 1, 2, 4, 5, 5, 5

## SECTION C

Each correct answer in this section is worth 4 marks.

26. A rectangular swimming pool is 8 metres long, 5 metres wide, and has a constant depth of 1.2 metres. The charge for water use is \$2.04 per kilolitre. We know that 1 litre of water exactly fills a cube whose edges are 10 centimetres. The approximate cost to fill the pool with water is:
- (A) \$10 (B) \$100 (C) \$1 000 (D) \$10 000
27. A student constructed a rectangle on a sheet of paper. She then noticed that if she doubled the width and halved the length she would form a square of perimeter 10 cm. What was the perimeter of the original rectangle?
- (A) 20 cm (B) 12.5 cm (C) 10 cm (D) 5 cm
28. Two tasks were given to the class.  
 Task 1: Construct a triangle with angles of  $40^\circ$ ,  $60^\circ$  and  $120^\circ$   
 Task 2: Construct a triangle with sides of 40 cm, 60 cm and 120 cm  
 Abe said “I can do both tasks”.  
 Bettina said “I can do task 1, but you can’t do task 2”  
 Charles said “Both tasks are impossible”  
 Donna said “I can do task 2, but task 1 is impossible”  
 Who made the correct statement?
- (A) Abe (B) Bettina (C) Charles (D) Donna
29. Fifty students were surveyed and asked if they used Twitter or Facebook. The results are summarised in the table below.
- |                   | Use Facebook | Don’t use Facebook |
|-------------------|--------------|--------------------|
| Use Twitter       | 7            | 13                 |
| Don’t use Twitter | 19           | 11                 |
- What percentage of the students use neither Twitter nor Facebook?
- (A) 11% (B) 22% (C) 38% (D) 86%

30. Aisha earns a weekly wage of \$975 and is paid an additional allowance of \$63.50 for each day that she works in a confined space. What is her income in a fortnight when she worked in confined space for 4 days?

- (A) \$1129 (B) \$1950 (C) \$2013.50 (D) \$2204

31. Which of the following is divisible by each of the integers (whole numbers) from 1 to 10 inclusive?

- (A)  $12 \times 23$  (B)  $23 \times 34$  (C)  $34 \times 45$  (D)  $45 \times 56$

32. The average of four different positive whole numbers is 6. If the difference between the smallest and largest is as large as possible, what is the average of the other two numbers?

- (A) 2.5 (B) 3 (C) 3.5 (D) 6

33. Match sticks are used to make hexagonal patterns along a straight line. Note that 6 match sticks are needed to make a 1-hexagon pattern,



11 match sticks for a 2-hexagon pattern,



and so on.



How many hexagons would there be in the pattern if you had 120 match sticks available to use?

- (A) 19 (B) 20 (C) 23 (D) 24

34. Melissa saved a certain amount of money for special activities during the school holidays. She spent \$24, which was 40% of her money, on a shopping trip. A few days later she went to the movies and spent a further 15% of the original amount of money. How much money did she have left after the movies?

- (A) \$27 (B) \$36 (C) \$45 (D) \$60

35. The powers of 7 are:

$$7^1 = 7$$

$$7^2 = 7 \times 7 = 49$$

$$7^3 = 7 \times 7 \times 7 = \dots$$

$$7^4 = 7 \times 7 \times 7 \times 7 = \dots$$

and so on.

What is the remainder when  $7^{77}$  is divided by 100?

- (A) 7 (B) 39 (C) 43 (D) 49

**THERE ARE NO MORE QUESTIONS.**