NEW SOUTH WALES DEPARTMENT OF EDUCATION AND TRAINING

NEWCASTLE PERMANENT

THE NEWCASTLE PERMANENT BUILDING SOCIETY

PRIMARY MATHEMATICS COMPETITION

Wednesday, 1 September, 2004

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 <u>NOT</u> permitted.

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

4. All answers <u>MUST</u> be recorded in <u>PENCIL</u> on your answer sheet.

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

6. Marks will <u>NOT</u> be deducted for incorrect answers.

SECTION A

Each correct answer in this section is worth 2 marks.

1. What is the next number in this pattern?

   8, 12, 16, 20, 24, 28, _____

   (A) 29   (B) 30   (C) 32   (D) 36

2. Holly had $5.00 and bought a pen which cost $1.35. How much change should she be given?

   (A) $3.65   (B) $4.35   (C) $4.65   (D) $4.75

3.   3 0 9 4
     + 1 2 0 7
     _____   The answer is:

   (A) 1887   (B) 4201   (C) 4291   (D) 4301

4. How would "25 minutes to ten" be shown on a digital clock?

   (A) 10:35   (B)10:25   (C) 9:35   (D) 9:25

5. How many multiples of 5 are there between 19 and 59?

   (A) 7   (B) 8   (C) 39   (D) 40

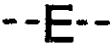6. The sum of two numbers is 656. One of these numbers is 298. The other number is:

   (A) 954   (B) 368   (C) 358   (D) 258

7. The perimeter of a 6 cm by 4 cm rectangle is:

   (A) 10 cm   (B) 20 cm   (C) 24 cm   (D) 24 cm^2

8. $(70 \times 100) + 77$ is:

   (A) 777   (B) 7077   (C) 70 077   (D) 70 707

9.   The dotted lines show that **U** has only vertical symmetry and that **E** has only horizontal symmetry.

   Which letter has both vertical and horizontal symmetry?

   (A) **H**   (B) **M**   (C) **S**   (D) **T**

10. How far will a car go in 3 hours travelling at 66 km/h?

   (A) 22 km   (B) 178 km   (C) 188 km   (D) 198 km

11. Eight hundred grams of flour are needed to make a pudding. How much flour is needed to make fifty of these puddings?

   (A) 4 kg   (B) 16 kg   (C) 40 kg   (D) 400 kg

12. What digit does ★ stand for in this question?

$$\begin{array}{r} 5 \star 8 \\ \times \quad 6 \\ \hline 3\,4\,6\,8 \\ \hline \end{array}$$

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

13. A train left Newcastle at 3:48 pm and took $1\frac{3}{4}$ hours to travel to Gosford. At what time did it arrive at Gosford?

   (A) 4:03 pm   (B) 5:03 pm   (C) 5:23 pm   (D) 5:33 pm

14. Which of the following does <u>NOT</u> equal three quarters?

   (A) $\frac{8}{12}$ (B) 0.75   (C) 75%   (D) $\frac{15}{20}$
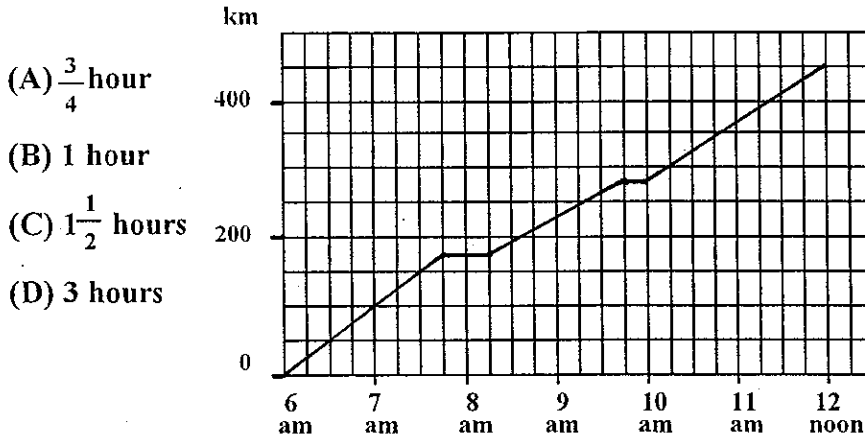
15. How many edges has a pentagonal pyramid?

   (A) 6   (B) 10   (C) 12   (D) 15

SECTION B

Each correct answer in this section is worth 3 marks.

16. The travel graph shows when "driver reviver" stops were taken on a car trip. What was the total time taken at these "driver reviver" stops?

TRAVEL GRAPH

(A) $\frac{3}{4}$ hour

(B) 1 hour

(C) $1\frac{1}{2}$ hours

(D) 3 hours

17. Andrew is 25 cm shorter than Ryan. Ryan is 35 cm taller than Mary. Andrew is 1.13 m tall. How tall is Mary?

(A) 78 cm   (B) 1.03 m   (C) 1.12 m   (D) 1.23 m

18. Each small square on this map has a side which represents 1 km.
The map shows a yacht's position when at "D2", the point P.

From P, the yacht sailed 2 km east, 3 km north, 4 km west and 5 km south. In what direction would the yacht now have to sail to return to P?
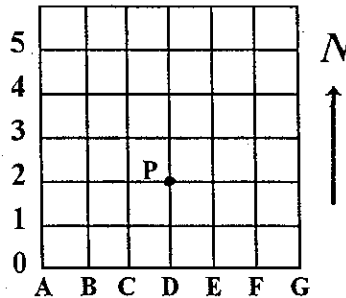
(A) NE   (B) NW   (C) SE   (D) SW

19. In a chess competition, for every 4 games Hannah won, she lost 3 games. Hannah lost 12 games. If no games were drawn, how many games of chess did Hannah play?
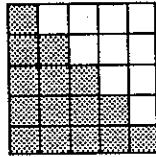
(A) 16   (B) 28   (C) 36   (D) 48

20. If $\square = 0.4 \times 5 \times 6$ then:

(A) $\square = 0.12$ (B) $\square = 1.2$ (C) $\square = 12$ (D) $\square = 120$

21. If a triangle has an obtuse angle, the other two angles of that triangle must be:

(A) both acute angles.

(B) a right angle and an acute angle.

(C) both obtuse angles.

(D) an obtuse angle and an acute angle.

22. What percentage of the large square is shaded?

(A) 15%

(B) 50%

(C) 55%

(D) 60%

23. Three angles of a quadrilateral are 79°, 52°, and 37°.
What is the size of the fourth angle of that quadrilateral?

(A) 12°   (B) 92°   (C) 168°   (D) 192°

24. The area representing Muddy Lake on a map is 3 cm². On this map a length of 1 cm represents a distance of 10 km. What is the actual area of Muddy Lake?

(A) 3 km²

(B) 30 km²

(C) 300 km²

(D) 3000 km²

Muddy Lake

1 cm represents 10 km
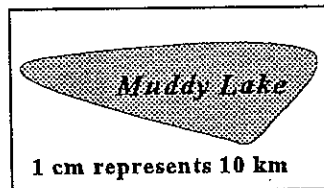
25. Which vehicle has the fastest average speed?

(A) A truck which travels 23 km in 20 minutes.

(B) A car which travels 35 km in 30 minutes.

(C) A van which travels 48 km in 40 minutes.

(D) A bus which travels 55 km in 50 minutes.

Each correct answer in this section is worth 4 marks.

26. The pie graph shows the budget for a $54 000 annual income. How much is planned to be saved?
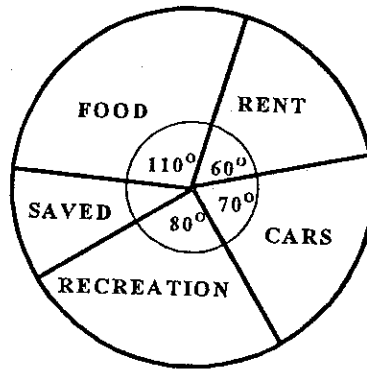
   (A) $400

   (B) $3200

   (C) $4000

   (D) $6000

27. The following are the results Joel obtained when he tossed a fair coin five times.

   Head, Head, Tail, Tail, Head.

   Which of the following statements would best describe the possible outcome if he tossed the coin one more time?

   (A)   He would be just as likely to throw a *"Head"* or a *"Tail"*.

   (B)   He would be more likely to throw a *"Head"*.

   (C)   He would be more likely to throw a *"Tail"*.

   (D)   He would be less likely to throw a *"Head"*.

28. What fraction of the area of the large square QRST is the area of the triangle XYZ?

   (A) $\dfrac{1}{2}$

   (B) $\dfrac{1}{4}$

   (C) $\dfrac{1}{6}$

   (D) $\dfrac{1}{8}$
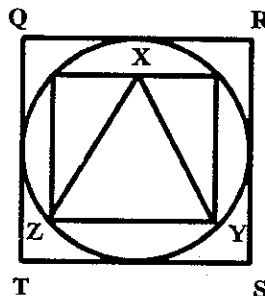
29. Which statement is always TRUE?

   (A) The product of 2 consecutive whole numbers must be a multiple of 3.

   (B) The product of 3 consecutive whole numbers must be a multiple of 4.

   (C) The product of 4 consecutive whole numbers must be a multiple of 5.

   (D) The product of 5 consecutive whole numbers must be a multiple of 6.

30. Thomas drew a rectangle which had length and width measurements in whole centimetres. He then worked out the perimeter and area of that rectangle.

   Which of the following could have been the perimeter and area measurements of the rectangle he drew?

   (A) Perimeter = 16 cm   Area = 14 cm^2

   (B) Perimeter = 19 cm   Area = 16 cm^2

   (C) Perimeter = 22 cm   Area = 24 cm^2

   (D) Perimeter = 30 cm   Area = 29 cm^2

31. Pia had ploughed only 1.75 ha of a 240 m by 150 m rectangular paddock. What area of this paddock had not been ploughed?

   (A) 1.85 ha   (B) 34.25 ha   (C) 358.25 ha   (D) 1850 m^2

32. This is a leap year which had five Sundays in February. What will be the next leap year to have five Sundays in February?

   (A) 2008   (B) 2016   (C) 2024   (D) 2032

TURN OVER THE PAGE FOR QUESTIONS 33, 34 AND 35.

33. The diagram shows how two identical circles just fit inside the rectangle PQRS. The area of this rectangle in square centimetres, is the same as its perimeter in centimetres. The radius of each circle is between:

(A) 0 cm and 1 cm.

(B) 1 cm and 2 cm.

(C) 2 cm and 3 cm.

(D) 3 cm and 4 cm.

P   Q

S   R
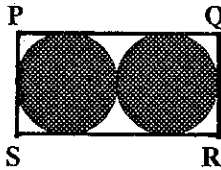
34.

Powers of 7	Answer
$7^1 = 7$	7
$7^2 = 7 \times 7$	49
$7^3 = 7 \times 7 \times 7$	343
$7^4 = 7 \times 7 \times 7 \times 7$	2 401
$7^5 = 7 \times 7 \times 7 \times 7 \times 7$	16 807
$7^6 = 7 \times 7 \times 7 \times 7 \times 7 \times 7$	117 649
$7^7 = 7 \times 7 \times 7 \times 7 \times 7 \times 7 \times 7$	823 543
$7^8 = 7 \times 7 \times 7 \times 7 \times 7 \times 7 \times 7 \times 7$	5 764 801

Study the "Powers of 7" table. Which one of the following is a multiple of 100?

(A) 7^{14} - 43   (B) 7^{21} - 43   (C) 7^{35} - 43   (D) 7^{36} - 43

35. Using the digits 1, 3, 4, 5 and 6, Pam wrote down all of the four digit numbers which had no repeated digits. How many of these four digit numbers were multiples of four?

(A) 36   (B) 24   (C) 18   (D) 12

THERE ARE NO MORE QUESTIONS