THE ENGLISH SCHOOL
A HUNDRED YEARS OF EXCELLENCE

1900   2000

English School

ENTRANCE EXAMS 2003

MATHEMATICS   **YEAR 1**

Time: 1 hour and 30 minutes

* Answer all questions.

* Show all your working.

* The marks for each question are given in brackets.

* If you can not find the answer to a question move to the next one without wasting time.

* Calculators are not allowed.

* The symbol for division : is the same as ÷ .

* Leave the margin empty.

1) a) Use numeric digits to write the number two million one thousand and fifteen.

Answer: …………………….....
(1 Mark)

b) Calculate the following

(i) $\dfrac{0.005 \times 2000}{0.25}$

Answer: ………..…………..
(2 Marks)

(ii) $0.08 \div (0.01 \times 0.01 \times 400)$

Answer: ………..…………..
(2 Marks)

2) Calculate the following. Give your answers in the space provided.
   a) 0.7km – 100m

Answer: ……….……….km

   b) 72 hours – 720 minutes

Answer: ………..…….days

   c) 0.5 litres (l) – 500 millilitres (ml)

Answer: ………..…….litres
(5 Marks)

3) Give the missing number in each of the following
   a) 31, 2, 16, 35,…….., 24, 38, 9
   b) 41, 37, 31, 29, 23,………, 17, 13
(2 Marks)

4) a) Michael is four times older than his sister. His sister is 9 years younger than him. How old is Michael?

Answer: ………..…………...

(3 Marks)

b) My father is three times older than what he used to be thirty years ago. How old is my father?

Answer: ………..…………...

(3 Marks)

5) Calculate the following. Give your answers in the form of a mixed number.

a) $3\dfrac{1}{3} + 1\dfrac{1}{28} - 2\dfrac{1}{14}$

Answer: ………..…………...

(2 Marks)

b) $2\dfrac{1}{8} - 1\dfrac{5}{9} + 1\dfrac{5}{6}$

Answer: ………..…………...

(3 Marks)

c) $6\dfrac{1}{3} - \left(3\dfrac{1}{3} \div 2\dfrac{1}{4}\right)$

Answer: ………..…………….

(4 Marks)

6) Three athletes are competing in the 10 000m race. All of them start from the same point but they run with a different speed. Athlete A runs 200m every 30 seconds, athlete B runs 200m every 35 seconds and athlete C runs 200m every 40 seconds.
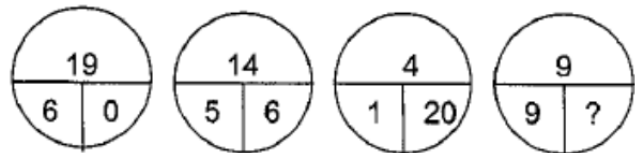   a) After how long will all three of them meet again?

Answer: ………..…………….

(3 Marks)

   b) At the meeting point how much longer will A have run compared to B?

Answer: ………..…………….

(4 Marks)

7) Find the missing number from the fourth circle.

Answer: ………..…………….

(1 Mark)

8) The first two numbers of a sequence are $\frac{1}{2}$ and 2. Each next term of the sequence can be found by multiplying the previous two together. Find the next three terms of the sequence.

Answer: ………..…………….

9)   1961, 6119, 6969

All of the above numbers have the following property: when read upside down their values remain the same. Which are the next two four digit numbers having the same property?

Answer: ……….……….…..
(2 Marks)

10)

The sum of the two opposite faces of a single dice is always 7.
a) If you throw a single dice on a table and the sum of the faces that you can see is 17 (only the face which is hidden by the table cannot be seen), which is the number that you cannot see?

Answer: ……….………….
(2 Marks)

b)   If you throw **two** dice which are not touching each other (see picture). The sum of the faces which can be seen is 30. Which two numbers cannot be seen?

Answer: ……….……….…..
(2 Marks)

11) A Street has the same amount of houses on both sides. The houses on the left hand side are numbered 1, 2, 3, 4, 5 etc. until the end of the road where it stops and the houses continue to be numbered in the same way starting from the end of the road from the right hand side this time. The numbering stops at the beginning of the road (opposite the house with number 1). If in that road the house with number 12 is opposite the house with number 29, how many houses does the road have?

Answer: ………..…………..

(2 Marks)

12) A clock shows the time 4.15 p.m. What will the time be if the minute hand has turned through 765 degrees?

Answer: ……….…………...

(3 Marks)

13) Find the answer after converting the following numbers to decimals. Give your answer as a decimal number.

$$1\frac{1}{2} + 2\frac{1}{8} - \frac{1}{4} + 3\frac{3}{5} =$$

Answer: ……….…………..

(3 Marks)

14) Christiana makes a mistake and multiplies a number by $2\frac{1}{2}$ instead of dividing the number by $2\frac{1}{2}$. The result of the multiplication is 50. What would the result be if Christiana had divided by the number instead of multiplying?

Answer: ……….……………..

(3 Marks)

15) John begun reading a book of 480 pages. The first night he read half of the book. The second night he read one third of the part he had not read. The third night he read $\frac{3}{4}$ of the pages which he had not read. What part of the book has not been read yet?

Answer: ……….……………..

(4 Marks)

16) Write the following numbers in ascending order (starting from the smallest).

$$\frac{7}{9}, \quad \frac{2}{3}, \quad 0.7, \quad \frac{5}{6}$$

………., ………., …………., ,……….

(3 Marks)

17) Petros is counting the amount of money he spent on his car for the past year. He travelled with his car 3000km using 1 litre of petrol for every 10km where each litre of petrol costs 50 cents. He also took his car twice to the mechanic for repairs which cost £100 each time. In addition he was paying £5 per week for washing his car.

a) How much money did he spend on petrol?

Answer: ……………………

(2 Marks)

b) What was the total that the car cost to him for the whole year? (1 year = 52 weeks)

Answer: ……………………

(2 Marks)

18) The population of a city is increasing by 50% every 10 years.

a) What was the population of the city in 1970 if in 1950 the population was 300 000?

Answer: ……………………

(2 Marks)

b) What was the population in 1940?

Answer: ……………………

(2 Marks)

19) Helen is 11cm taller than Andri. Stefanie is 8cm shorter than Helen. If Andri is 1.34 m tall how tall is Stefanie?

Answer: ……………………

(2 Marks)

20) The height of a certain plant is doubling every month. When the plant is 6 months old its height is 120 cm.

a) How many months old was the plant when its height was 60cm?

Answer: ……………………

(1 Marks)

b) How tall was the tree when it was planted?

Answer: ……………………

(2 Marks)

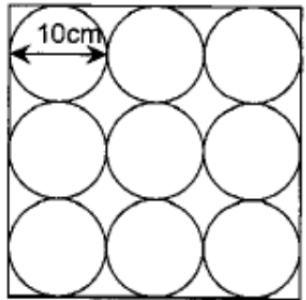21) A pool has dimension 1.2 m x 0.8 m x 0.5m. Only $\dfrac{3}{4}$ of the pool is full. How many bottles of water can be filled from the pool if each of the bottles can hold $\dfrac{3}{4}$ of a litre? ($1m^3 = 1000litres$)

Answer: ……………………

(4 Marks)

22)

The diagram shows a piece of paper in the shape of a square. This piece has been cut to create some circles. All of the circles have the same diameter (10cm). The radius of each circle is therefore 5cm. Use the formula

$$A = \pi \times r \times r$$

for the area (A) of the circle where r is the radius and π is a number which is approximately 3.

Using π as 3 find:

a) The total area of all the circles.

Answer: ……………………

(2 Marks)

b) The area of the piece of paper before the circles were cut.

Answer: ……………………

(1 Marks)

c) What part of the paper was not used when the circles were cut? Give your answer in its simplest form.

Answer: ……………………

(3 Marks)

23) Eliana went for shopping at a supermarket and she bought the following:

3 bottles of wine for £4.23 each

2 boxes of detergent for £3.24 each

3kg of oranges for 80 cents per kg

5kg of chicken for £1.55 per kg

4 bottles of sprite for 37 cents each

How much money did she give if she was given back £4.20 change?

Answer: ……………………

(4 Marks)

24) Sunset beach hotel has special offers for the summer. That is:

£23 per person per night

Children under 13 year of age half price

The offer is valid for Fridays, Saturdays and Sunday evenings.

John and Anna along with their two children Dimitri and Olympia (14 and 9 years old) are thinking of taking advantage of the offer. How much will their hotel cost?

Answer: ……………………

25) a) Study the example given below and complete the missing parts in the rectangles below.

Example :

$$400 \xrightarrow{\div 4} 100 \xrightarrow{+275} 375 \xrightarrow{\div 25} 15 \xrightarrow{\times 10} 150$$

Complete the following:

$$\boxed{} \xrightarrow{\times \frac{1}{2}} 345 \xrightarrow{\div 3} \boxed{} \xrightarrow{+\boxed{}} 200 \xrightarrow{\div \frac{1}{2}} \boxed{}$$

(3   Marks)

b) Complete the following

$$
\begin{array}{cccccc}
\boxed{} & 4 & \boxed{} & 2 & + \\
4 & \boxed{} & 3 & \boxed{} & \\
\hline
1 & 0 & 1 & 3 & 0 \\
\end{array}
$$

(3   Marks)

THE END