

**FOREST SCHOOL
ENTRANCE EXAMINATION 2012
MATHEMATICS**

Calculators are **NOT** allowed
Time: One hour

NAME.....

CANDIDATE NUMBER.....

1 Work out $57 + 26$

ANSWER.....

2 Work out $34 - 18$

ANSWER.....

3 Work out 324×11

ANSWER.....

4 Work out $3138 \div 6$

ANSWER.....

5 How many hours were there in the year 2011?

ANSWER.....

TURN OVER

6 Isaac has £148 and he spends £97. How much does he have left?

ANSWER.....

7 Find $\frac{3}{4}$ of 30.

ANSWER.....

8 What number is exactly halfway between $1\frac{1}{2}$ and 3 ?

ANSWER.....

9 Calculate $3.6 \div 0.4$

ANSWER.....

10 The bus should leave my house at 3:46pm and should take 12 minutes to get to the train station. The bus arrives 4 minutes late and then takes 6 minutes longer than usual to get to the station. What time do I arrive at the station?

ANSWER.....

11 How many thirds are there in $2\frac{2}{3}$?

ANSWER.....

12 Using 7,6,5,4 in order and addition and subtraction signs we can make 10, as shown below.

$$7 - 6 + 5 + 4 = 10$$

Fill in the gaps below with either addition or subtraction signs to make 12.

$$7 \quad 6 \quad 5 \quad 4 = 12$$

13 Theo bought a chocolate bar for 72p and some balloons, each of which cost 20p. He paid with a £10 note and received £3.88 change. How many balloons did he buy?

ANSWER.....

TURN OVER

14 Four friends each sent good luck cards to each other. How many cards were sent altogether?

ANSWER.....

15 Write 0.32 as a fraction in its lowest terms.

ANSWER.....

16 The 15th of April was a Monday. What day was the 5th of March of the same year?

ANSWER.....

17 A drawer contains 4 red socks and 4 blue socks. What is the smallest number of socks you need to take out in order **to be sure** that you have **at least** one matching pair?

ANSWER.....

18 What digits do the symbols represent in this subtraction?

$$\begin{array}{r} \blacksquare \quad 7 \quad 2 \\ - \quad 3 \quad \blacktriangle \quad 8 \\ \hline 4 \quad 7 \quad \heartsuit \end{array}$$

■ =

▲ =

♥ =

19 A coat cost £125 and was then reduced by 20% in a sale. What is the new price?

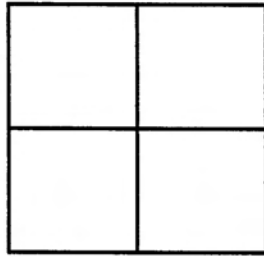
ANSWER.....

20 What is the smallest positive whole number that is exactly divisible by 2,3,4,5 and 6?

ANSWER.....

TURN OVER

- 21 Four 1cm squares fit inside a 2cm square, as shown here.



How many 1cm equilateral triangles would fit inside a 3cm equilateral triangle?

ANSWER.....

- 22 What is a quarter of 398?

ANSWER.....

- 23 The mass of a jar $\frac{1}{4}$ full of Marmite is 250g. It has a mass of 350g when it is $\frac{3}{4}$ full.
What is the mass of the empty jar?

ANSWER.....

- 24** A palindromic number is the same when written backwards as forwards, e.g. 454 is a palindromic number. How many palindromic numbers are there between 100 and 200?

ANSWER.....

- 25** Rehema rolls a fair dice 30 times. How many times should she expect to get a 5?

ANSWER.....

- 26** Consecutive whole numbers are next to each other.
For example, 4 and 5 are consecutive whole numbers.
Another example would be 16 and 17.

$\sqrt{70}$ lies between two consecutive whole numbers. What are they?

ANSWER.....and.....

- 27** Write, in words, the number 3 052 002

ANSWER.....

.....

TURN OVER

- 28 Amy thinks of a prime number that is greater than 10. She multiplies the number by three. Maryam says: "Your answer is an odd number" Is Maryam correct? Explain your answer carefully.

ANSWER.....

REASON.....

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- 29 A toy train of length 16cm approaches a tunnel of length 59cm. How many seconds will it take the train to pass completely through the tunnel at a speed of 5cm/second?

ANSWER.....

-
- 30 A clock is fast. It gains 2 minutes every hour. It is set correctly at 1pm. What time does the clock show when the correct time is 8:30pm?

ANSWER.....

31 In a football match the final score was 3-1. At half time the score was 1-0 and during the second half of the match the scores went 2-0, 2-1, 3-1.

In another match the full time score was 4-3. If the half time score was 2-2, list **all** the different possible scores that there could have been during the second half of the game (not including 2-2)

ANSWER.....
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32 If $5 * 3 = 5^2 + 3$
 $= 25 + 3$
 $= 28$

Find (a) $4 * 2$

ANSWER.....

The letters below are whole numbers. Give one possible value for each.

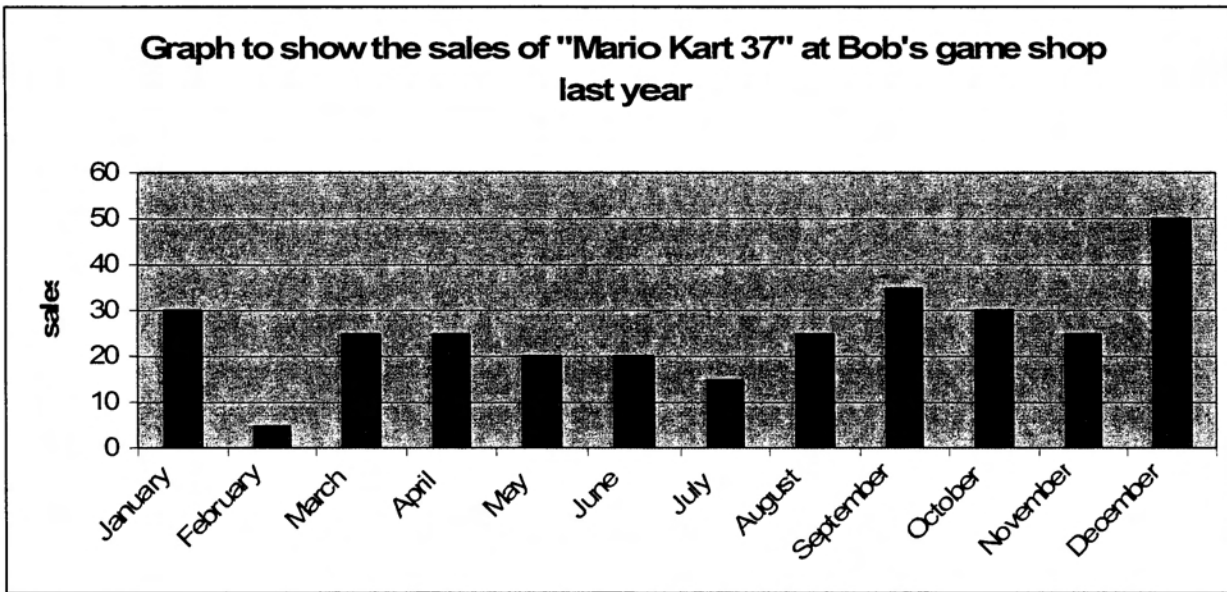
(b) $6 * y = 38$

$y =$

(c) $z * 6 = 31$

$z =$

TURN OVER



(a) How many games did Bob sell in October?

ANSWER.....

(b) Which month had the least sales?

ANSWER.....

(c) Which month had the most sales? Why do you think this might be?

ANSWER.....

REASON.....

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34 What is 5% of 5kg? Give your answer in grams.

ANSWER.....grams

35 512 is a Dudeney number because

$$512 = 8 \times 8 \times 8$$

and $8 = 5 + 1 + 2$, the sum of the digits of 512

Similarly,

$$17576 = 26 \times 26 \times 26$$

and $26 = 1 + 7 + 5 + 7 + 6$

Using the information given below, find two more Dudeney numbers.

$$14 \times 14 \times 14 = 2744$$
$$15 \times 15 \times 15 = 3375$$
$$16 \times 16 \times 16 = 4096$$
$$17 \times 17 \times 17 = 4913$$
$$18 \times 18 \times 18 = 5832$$
$$19 \times 19 \times 19 = 6859$$
$$20 \times 20 \times 20 = 8000$$

ANSWERS.....and.....

36 Find the next two numbers in each of these sequences

(a) 5, 8, 11, 14, ...

ANSWER.....and.....

(b) 3, 5, 9, 15,

ANSWER.....and.....

(c) 2, 3, 5, 7, 11, 13, ...

ANSWER.....and.....

TURN OVER

37 What is the area of a square that has perimeter 28cm? Give the units with your answer.

ANSWER.....

38 In a group of 46 children, 30 like carrots, 23 like bananas and 3 do not like either.

(a) How many children like both carrots and bananas?

ANSWER.....

(b) How many children like carrots but not bananas?

ANSWER.....

39 A journey of 45 miles takes me an hour and a half travelling at the same speed throughout. How far had I gone in 1 hour?

ANSWER.....

YOU HAVE NOW COMPLETED THE EXAMINATION.
IF YOU HAVE TIME GO BACK AND CHECK YOUR ANSWERS.