BENENDEN

Lower School Entrance 2017

MATHEMATICS

13+

1 Hour

Name: _____

Current school: _____

Date: _____

Equipment required: pen, pencil, ruler, protractor, compasses, eraser.

Instructions to Candidates:

- Attempt all questions. Do not worry if you don't manage to do them all
- Show ALL working
- Calculators are NOT permitted
- Check your answers for accuracy
- Total points for test 100

1 Write 128 as a product of its prime factors

128 = …….
(2)

2 **3,4, 16, 8, 23, 49**

From the list of numbers above, write down two numbers which:

a) are square numbers

…….. and ……..

b) multiply together to make 48

…….. and ……..

c) are factors of 16

…….. and ……..

d) are prime numbers

…….. and ……..

(Total 4 marks)

3 (a) change $\frac{3}{5}$ to a decimal

.....

(2)

(b) work out

$$\frac{3}{7} + \frac{3}{4}$$

.....

(2)

(c) Calculate, giving your answer as simply as possible

$$\frac{14}{21} \times \frac{6}{24}$$

.....

(3)

(d) Giving your answer as a mixed number, work out

$$\frac{12}{15} \div \frac{3}{35}$$

.....

(3)

4 Work out:

(a) 3 x (11+2)

…….
(2)

(b) 7 + 2 x 3

…….
(2)

(c) 27 – 3 X 2

…….
(2)

5 If d =3, e = 7 and f = -2, work out:

(a) $2f$

…….
(1)

(b) $d + e + f$

…….
(1)

(c) $ef + d$

…….
(1)

6 Here are 8 numbers.

8, 3, 7, 13, 2, 6, 7, 4

(a) what is the mode of these numbers?

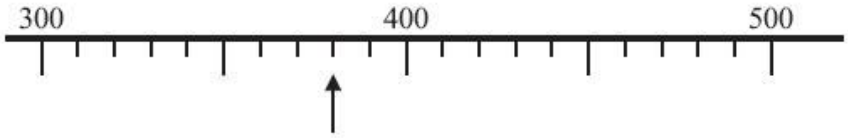
.....

(b) what is the mean of these 8 numbers?

.....

(Total 3 marks)

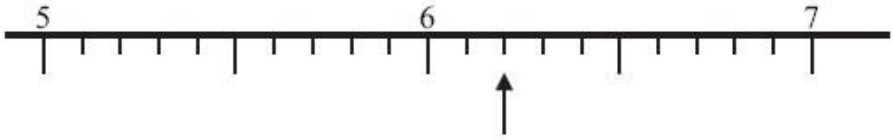
7



(a) Write down the number marked by the arrow.

. . . . . .

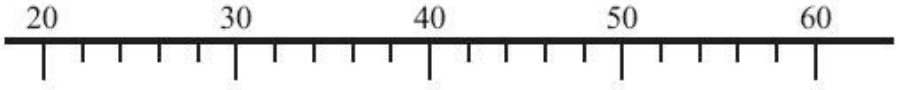
(1)



(b) Write down the number marked by the arrow.

. . . . . .

(1)



(c) Find the number 34 on the number line.

Mark it with an arrow (↑).

(1)

8 (a) Write the number **7378** to the nearest hundred.

.....

(1)

(b) Write the number **6402** in words.

.....

(1)

(c) Work out 54 × 1000

.....

(1)

9 There are 275 pupils at a primary school.

$\frac{3}{5}$ of the pupils are boys

(a) how many boys are there?

.....

(2)

(b) If 150 pupils play a musical instrument, what fraction of the pupils play an instrument? Give your answer in its lowest terms.

.....

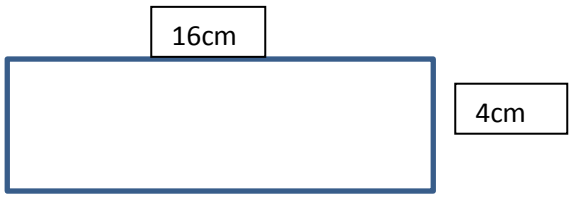
(2)

(c) In a class of 25, 17 of the pupils play football for the local club. What percentage of the class plays football at the local club?

.....

(2)

10 Here is a rectangle with length 16cm and width 4cm.



(a) A square has the same area as this rectangle. What is the side length of this square?

.....
(4)

(b) What is the perimeter of the rectangle above?

.....
(2)

11 Jack, Anna and Alyssa share £49 in the ratio 4:2:1. How much money do they each get?

Jack: £.....

Anna: £.....

Alyssa: £.....

(Total 4 marks)

12 Solve:

(a) $2x + 6 = 20$

$x =$

(2)

(b) $2x - 5 = 11$

$x =$

(2)

(c) $7 = 7 + 7x$

$x =$

(1)

(d) $-x - 4 = -3$

$x =$

(2)

13 A taxi charges according to the following rule:

Cost = £2.50 + 60p per km

(a) Work out the cost for a 7 km journey

£……
(3)

(b) The taxi charges me £9.70. How far have I travelled?

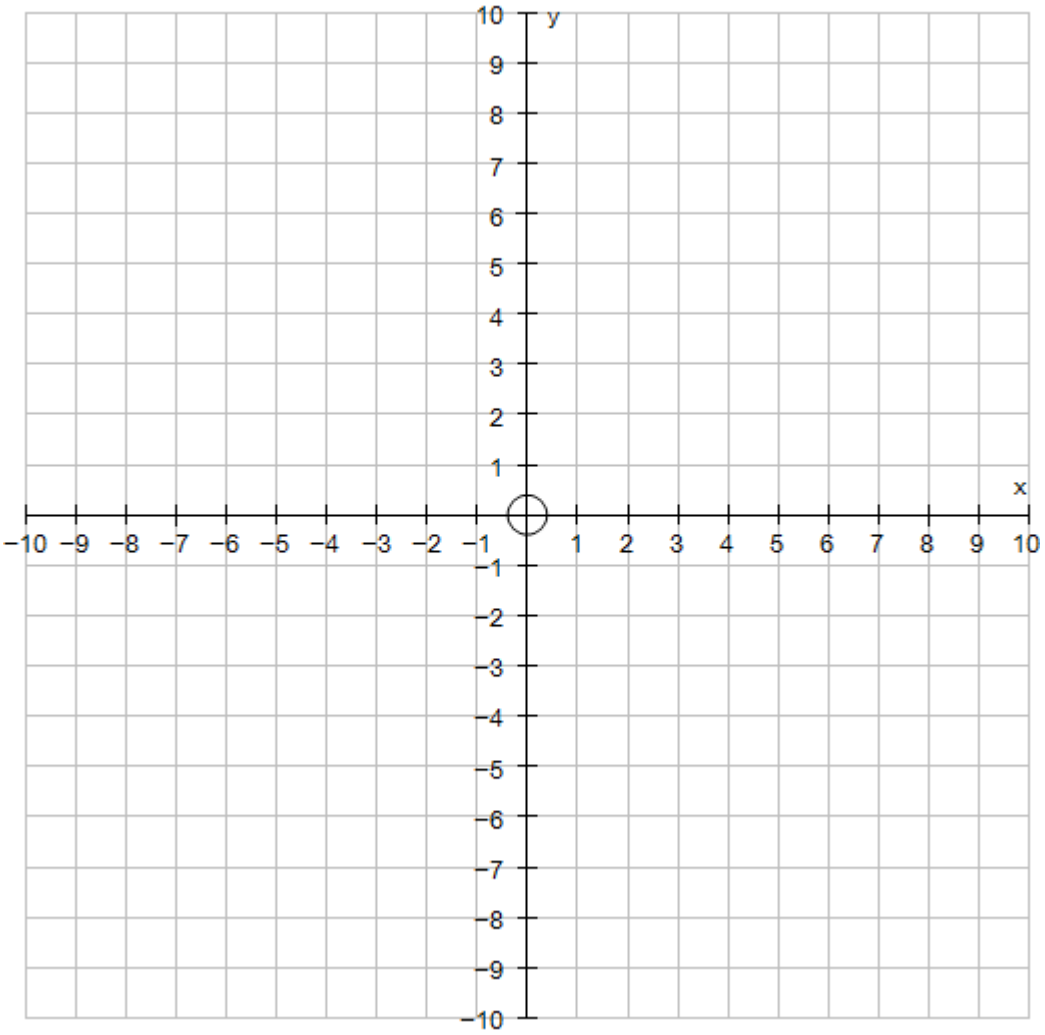
……km
(3)

14 (a) Complete this table of values for y=2x -1

x	-4	-1	0	2	4
y	-9		-1		7

(2)

(b) on the grid below, draw the graph of y = 2x - 1



(3)

15 In the triangle below, side AB is the same length as side AC

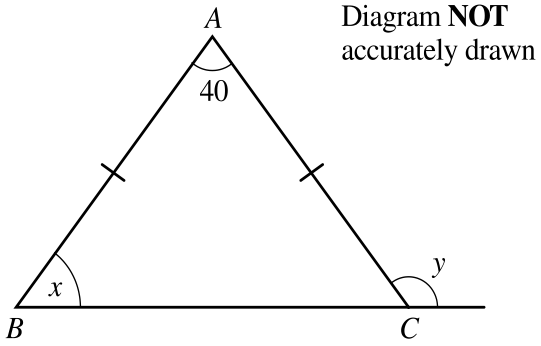


Diagram **NOT** accurately drawn

(a) what is the special name given to this type of triangle?

.....
(1)

(b) work out the size of angle x

.....°
(1)

c) work out the size of angle y

.....°
(1)

16 Sally recorded the maximum temperature and the minimum temperature on each of six days in December. The table shows her results.

	Mon	**Tues**	**Wed**	**Thurs**	**Fri**	**Sat**
Maximum temperature	1 °C	3 °C	2 °C	0 °C	3 °C	4 °C
Minimum temperature	– 4 °C	–2 °C	– 4 °C	–5 °C	–3 °C	–2 °C

(a) Write down the lowest temperature.

. . . . . °C

(1)

(b) Work out the difference between the maximum temperature on Wednesday and the minimum temperature on Wednesday.

. . . . . °C

(1)

The minimum temperature on Sunday was 5 °C higher than the minimum temperature on Saturday.

(c) Work out the minimum temperature on Sunday.

. . . . . °C

(1)

17 Marie makes gift cards. She sells one card for £3.50. The materials to make one card cost Marie £1.05.

(a) How much profit does she make on one card?

……..
(1)

(b) What percentage profit does she make on one card?

……..
(3)

(c) Eliza wants to buy 15 thank you cards from Marie.

How much does Eliza pay for the cards?

…….(2)

(d) If Marie decided to give Eliza a 10% discount for the cards, how much would Eliza now pay?

…….(2)

18 A quadrilateral has angles of $x, 3x, 64°$ and $132°$

Not drawn accurately

(a) Write down an equation in x

(2)

(b) Solve your equation to find the value of x

$x =$.....

(4)

19 Mr Jones bought theatre tickets for 4 adults and their children.

An adult ticket costs £50.
A child ticket costs £40.

Mr Jones paid a total of £480.

Work out the number of child tickets bought by Mr Jones.

……..

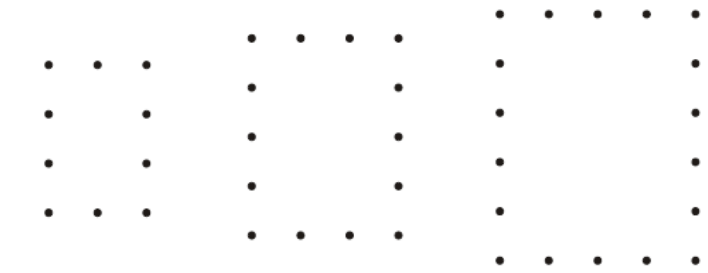
(3)

20 Bob earns £12 per hour. He works for 40 hours per week. He saves half of his earnings each week. How many weeks will it take him to save £500?

.....

(3)

21 Below are some patterns made up of dots.



Pattern number 1 Pattern number 2 Pattern number 3

(a) In the space below, draw Pattern number 4.

(1)

(b) Complete the table:

Pattern number	1	2	3	4	5
Number of dots	10	14	18		

(2)

(c) How many dots will there be in pattern number 8?

.....

(2)

(d) How many dots will there be in pattern number 100?

.....

(1)

End of Paper - Please check your work

This paper is out of 100