

# *Functional Skills*

## **Diagnostic Assessment**

**Mathematics**

**LEVEL 1**

**Answers**

# Mathematics

## Level 1 - Diagnostic Test

This test is designed to help you and your tutor identify any aspects of number work where you may need support and extra practice to achieve your aims for the future.

### Equipment you will need:

A calculator for the 'Shape and Space' and 'Handling Data' sections  
(You should **not** use a calculator for questions 1 to 17 on number work)

A ruler, pen and pencil.

**PLEASE** - Show all your working out - it will help your tutor to help you.

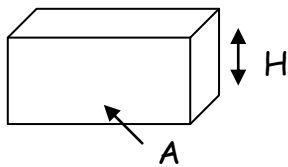
### Formulae and reminders

Area = length  $\times$  width

Perimeter = the distance all round an object

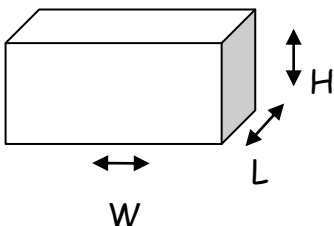
A Net is a drawing you can cut out and fold to make a 3-dimensional shape

Mode = the most frequently occurring value in a set of data.



Volume of cuboid (box) = area of base  $\times$  height

alternative



Volume of a cuboid (box) = length  $\times$  width  $\times$  height

# Level 1 Diagnostic Test - Number(Answers)

## 1. Addition of Numbers

a)  $7+2=9$       b)  $6+8=14$       c)  $31+23=64$       d)  $69+42=111$

e)  $132+246=378$       f)  $361+42=403$       g)  $37+6=43$       h)  $231+6+48=285$

## 2. Subtraction of Numbers

a) 
$$\begin{array}{r} 7 \\ - 4 \\ \hline 3 \end{array}$$
      b) 
$$\begin{array}{r} 12 \\ - 7 \\ \hline 5 \end{array}$$
      c) 
$$\begin{array}{r} 268 \\ - 123 \\ \hline 145 \end{array}$$
      d) 
$$\begin{array}{r} 311 \\ - 186 \\ \hline 125 \end{array}$$

e) 
$$\begin{array}{r} 3156 \\ - 862 \\ \hline 2294 \end{array}$$
      f)  $615 - 287=328$       g)  $732 - 96=636$       h)  $3000 - 948=2052$

## 3. Multiplication of Numbers

a) 
$$\begin{array}{r} 8 \\ \times 3 \\ \hline 24 \end{array}$$
      b) 
$$\begin{array}{r} 12 \\ \times 6 \\ \hline 72 \end{array}$$
      c) 
$$\begin{array}{r} 24 \\ \times 5 \\ \hline 120 \end{array}$$
      d) 
$$\begin{array}{r} 158 \\ \times 7 \\ \hline 1106 \end{array}$$

e) 
$$\begin{array}{r} 3062 \\ \times 4 \\ \hline 12248 \end{array}$$

## Level 1 Diagnostic Test - Number

### 4. Division of Numbers

$$\begin{array}{r} \text{a) } 8 \\ \div 2 \\ \hline \end{array}$$

4

$$\begin{array}{r} \text{b) } 35 \\ \div 5 \\ \hline \end{array}$$

7

$$\begin{array}{r} \text{c) } 24 \\ \div 2 \\ \hline \end{array}$$

12

$$\begin{array}{r} \text{d) } 212 \\ \div 4 \\ \hline \end{array}$$

53

$$\begin{array}{r} \text{e) } 1035 \\ \div 3 \\ \hline \end{array}$$

345

### 5. Addition of Decimals

$$\begin{array}{r} \text{a) } 0.2 \\ + 0.3 \\ \hline \end{array}$$

0.5

$$\begin{array}{r} \text{b) } 1.2 \\ + 20.3 \\ \hline \end{array}$$

21.5

$$\begin{array}{r} \text{c) } 1.23 \\ + 12.30 \\ \hline \end{array}$$

13.53

$$\begin{array}{r} \text{d) } 13.6 \\ + 3.61 \\ \hline \end{array}$$

17.21

$$\begin{array}{r} \text{e) } 10.4 + 6 + 0.38 \\ = 16.78 \end{array}$$

### 6. Subtraction of Decimals

$$\begin{array}{r} \text{a) } 0.7 \\ - 0.2 \\ \hline \end{array}$$

- 0.5

$$\begin{array}{r} \text{b) } 12.7 \\ - 9.3 \\ \hline \end{array}$$

- 3.4

$$\text{c) } 105.2 - 16.9$$

88.3

$$\text{c) } 5.2 - 2.37$$

2.83

$$\begin{array}{r} \text{e) } 10.3 - 8.75 = \\ 1.55 \end{array}$$

### 7. Multiplication of Decimals

$$\text{a) } 0.2 \times 6 = 1.2$$

$$\text{b) } 0.2 \times 0.3 = 0.6$$

$$\text{c) } 1.2 \times 5 = 6$$

$$\begin{array}{r} \text{d) } 0.02 \times \\ 0.4 = 0.008 \end{array}$$

$$\begin{array}{r} \text{d) } 1.75 \times 1.1 = \\ 1.925 \end{array}$$

## Level 1 Diagnostic Test – Number

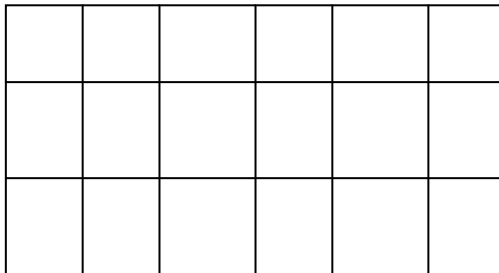
### 8. Division of Decimals

- a)  $6 \div 3 = 2$       b)  $0.6 \div 0.2 = 3$       c)  $0.8 \div 0.4 = 2$       d)  $1.2 \div 3.6 = 0.33$

9. There are 48 cars in the college car park and  $\frac{1}{4}$  of the cars are red.  
How many red cars are there?

12

10. The sketch shows a bar of chocolate. Make a copy of this sketch and shade in  $\frac{1}{3}$  of the bar.



Shade in 6 squares

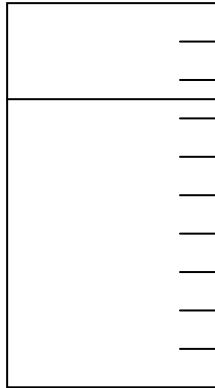
11. A school has 200 pupils; 40% are girls. How many girls are at the school?

80

## Level 1 Diagnostic Test – Number

12. Estimate the percentage of milk contained in the milk jug below.

75%



13. One hundred people had a drink in a café between 1.00pm and 3.00pm. Eighty had a cup of tea and twenty had a cup of coffee. What is the Ratio of tea drinkers to coffee drinkers? Express this ratio in its Simplest form.

4:1

14. Mandy goes to the local shop and buys a jar of coffee at £2.35, a carton of milk at £0.38p, a bag of sugar at £0.80p and a packet of biscuits at £1.19p. She gives the shop assistant £5. How much change does she receive?

0.28 pence

15. You start with a number, multiply it by 8 and then add 5 and the answer is 61. Find the number you started with

7

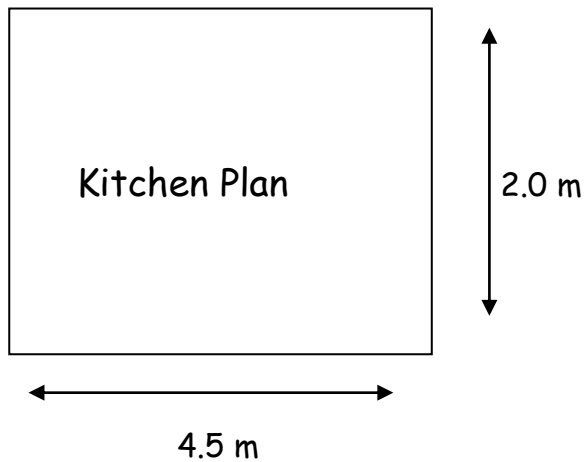
16. Using the formula below; find the profit given that revenue is £12,500 and the expenditure is £9.050.

$$\text{Profit} = \text{Revenue} - \text{Expenditure}$$

$$\text{Profit} = \text{£3450}$$

## Level 1 Diagnostic Test – Number

17. A kitchen is 4.5 m long and 2.0 m wide

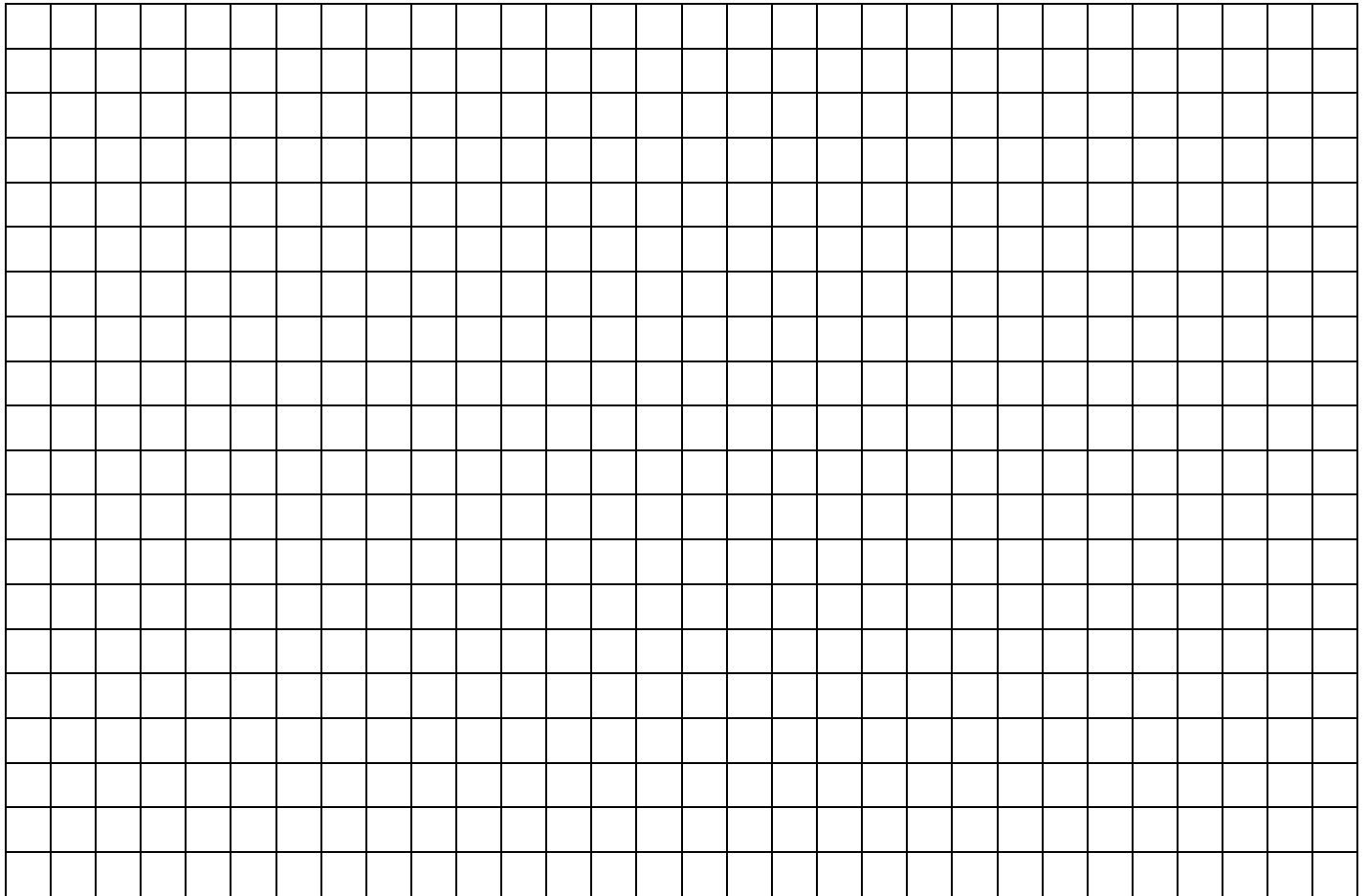
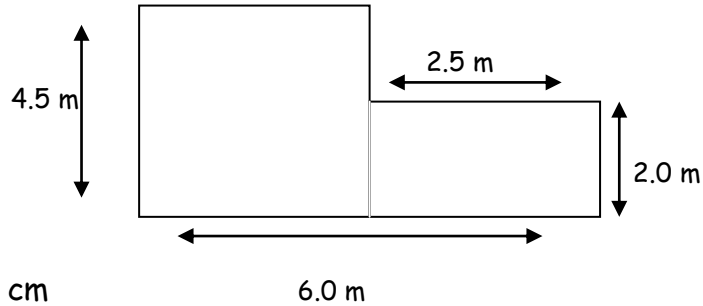


**Calculate:**

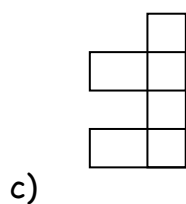
- a) The floor area **9 sq m**
  - b) The total perimeter **13 m**
  - c) The volume, if the height is 3.0 m **27 sq m**
18. State which list of measuring instruments would be most appropriate for the following tasks:
- a) Measuring the distance from Mansfield to Skegness **Road atlas**
  - b) Measuring the width of a shelf **3m steel tape**
  - c) Measuring the angle of a pie chart **Protractor**
  - d) Measuring out quantities for baking a cake **1 litre measuring jug**
  - e) Marking out a 2 m circle on a carpet **Compass**
    - 3m steel tape
    - Protractor
    - Bathroom scales
    - Car milemeter
    - Road atlas
    - Dressmaker's tape
    - Tablespoon
    - 1 litre measuring jug
    - Compass
    - Bucket

## Level 1 Diagnostic Test - Number

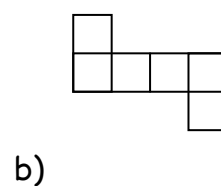
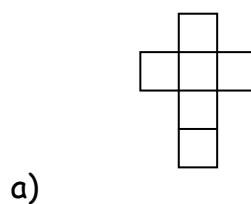
19. The drawing shows a sketch of a lounge. It is not drawn to scale. Using a scale of 2 cm to 1 m and using the grid provided make an accurate scale drawing of the lounge.



20. Which of the following three diagrams does NOT form the net of a cube?



c



## Level 1 Diagnostic Test - Number

21. A Keep Fit Class wore trainers. Below is a list of the sizes worn by each person.

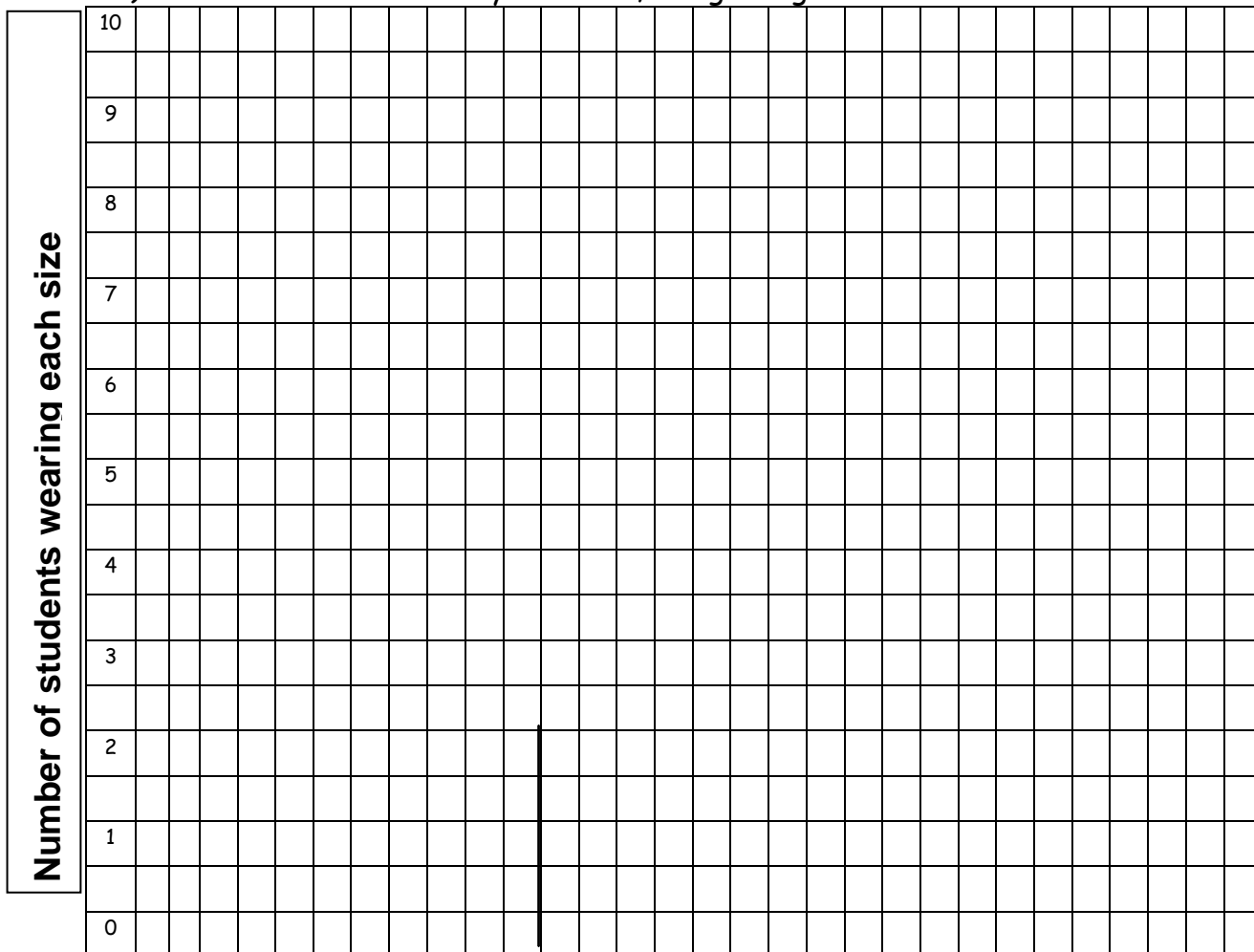
4	6	8	7	5	5	6	3
6	5	7	6	8	6	5	5
7	8	6	5	7	4	7	6

- a) Find the range  $8 - 4 = 4$

- b) Complete the table

Trainer Size	Tally (e.g. III)	Frequency
3		1
4		2
5		6
6	<del>IIII</del> II	7
7		5
8		3

- c) Draw a bar chart from your table, using the grid below:



- d) From the bar chart find the mode

## Level 1 Diagnostic Test - Number

22. Shown below are two conversion tables:

**Liquid Conversion Table**

Pints	Litres
1	0.57
2	1.14
3	1.71
4	2.29
5	2.86
6	3.43
7	4.00
8	4.57

**Weight Conversion Table**

lb	kg
2.20	1
4.41	2
6.61	3
8.82	4
11.02	5
13.23	6
15.43	7
17.64	8

Use the conversion tables to convert:

a) 3 pints into litres **1.71 litres**

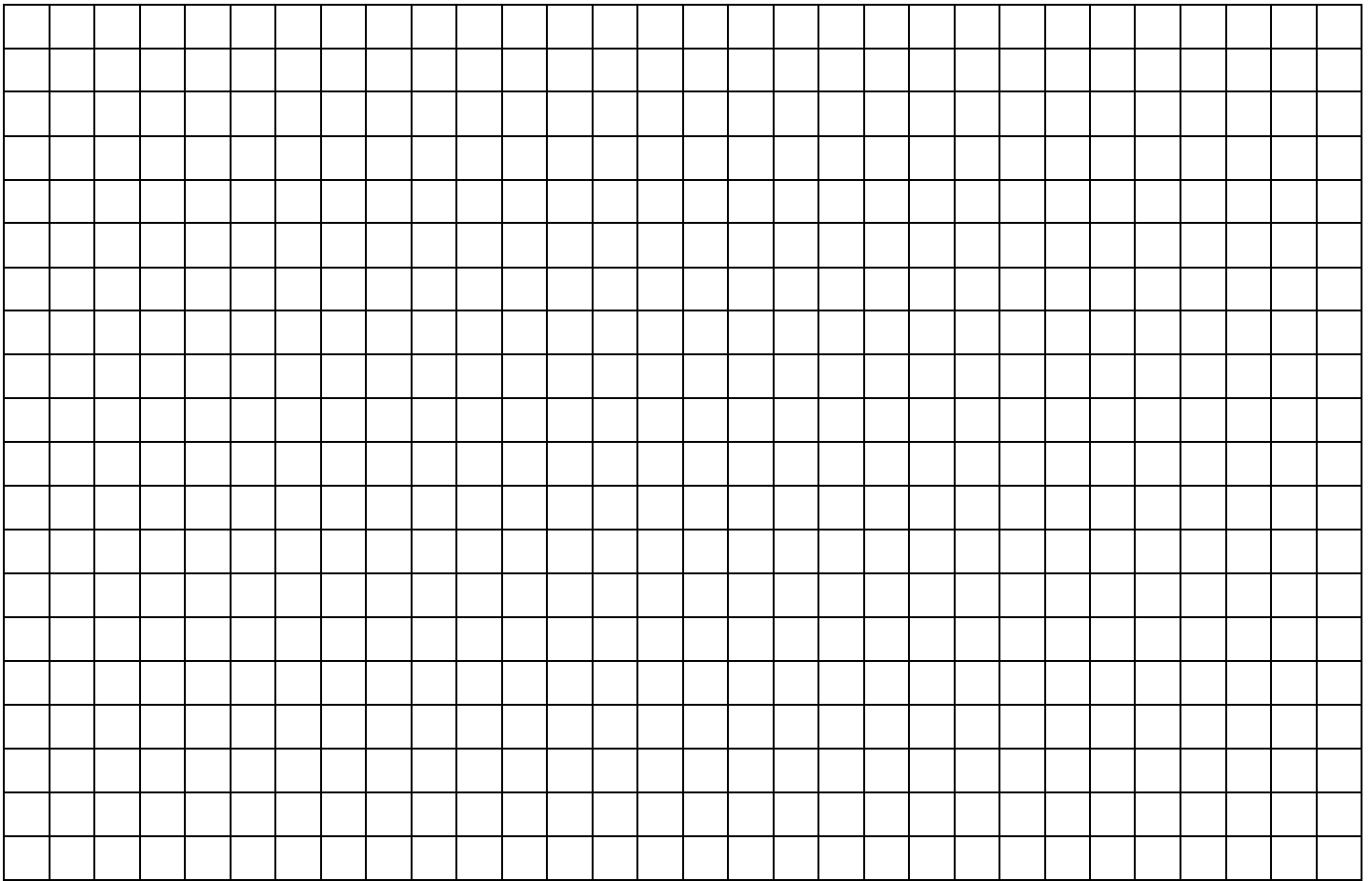
b) 6.5 kilograms (kg) into pounds (lb) **14.33 lbs**

## Level 1 Diagnostic Test - Number

23. The table shows the amount of rainfall during each month in 1996 at a resort in England.

Months	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rainfall (mm)	35	32	40	50	30	25	10	15	20	25	20	30

- a) Using the grid provided represent this information on a line graph



- b) Which month was the wettest? **April**

- b) During which two month period will it be best to take your holidays?

**July and August**

## Level 1 Diagnostic Test – Number

24. The pictogram below shows the number of female and male pupils in a school in the years 1995 and 1996.

1995



1996



Key:



= 150 females



= 150 males

a) How many females attended the school in 1995? 300

b) How many pupils attended the school in 1996? 1050