



Mathematics Challenge 2015

by

Children's Well-wishers Network (CWN)

YEAR 4

45 minutes

Do **NOT** open this booklet until instructed

Calculators must **NOT** be used



- Write your **name** and **candidate number** in the spaces provided at the top of the page.
- You have 45 minutes for this paper which is worth 50 marks.
- Write your answers in pencil. Do NOT use a pen.
- Answer all 25 questions, attempting them in order and writing your answers clearly.
- If you find that you cannot answer a question straight away leave it blank and move on to the next question. Return to it later if you have time.
- Wherever applicable answers should carry units.
- Scrap paper is available on request.

For Examiner's use only	
Question No.	Score
Q1	/ 2
Q2	/ 2
Q3	/ 2
Q4	/ 2
Q5	/ 2
Q6	/ 2
Q7	/ 1
Q8	/ 1
Q9	/ 1
Q10	/ 2
Q11	/ 3
Q12	/ 3
Q13	/ 2
Q14	/ 2
Q15	/ 2
Q16	/ 2
Q17	/ 1
Q18	/ 4
Q19	/ 1
Q20	/ 2
Q21	/ 2
Q22	/ 1
Q23	/ 1
Q24	/ 3
Q25	/ 4
Total	/ 50

Q1)

(a) When John buys pencils in singles each costs him 10 p and when he purchases them in dozens, each dozen costs £1.
Should he buy them in dozens or singles?

($\frac{1}{2}$ mark)

Justify your answer:

($\frac{1}{2}$ mark)

(b) There is an offer in your local shop:

Buy any 2 for £3.00

Yeo Valley 0% Fat
Greek Style
Yoghurt Lemon
450g

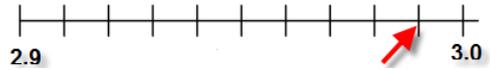
£1.60/unit



How much will you save by buying 4 pots of lemon yoghurt?

(1 mark)

Q2)



(a) Estimate the number shown by the red arrow.

(1 mark)

(b) Express your answer to nearest whole number.

(1 mark)

Q3)

(a) Express 0.33 in reduced fraction form.

(1 mark)

(b) Which is greater, 0.3 or $\frac{1}{3}$?

(1 mark)

Q4)

(a) The travelling distance from London to Manchester is different from Manchester to London.

Is this possible?

($\frac{1}{2}$ mark)

Why?

($\frac{1}{2}$ mark)

(b) The straight line distance from L to M is different from the distance from L to M.

Is that possible?

($\frac{1}{2}$ mark)

Why?

($\frac{1}{2}$ mark)

Q5) Bill ordered mango juice. He first ordered 1 litre and then ordered half of the previous order. He then ordered half of the previous order. He went on ordering in this manner.

After 3 orders how much might he have ordered all in all?

_____ litres

($\frac{1}{2}$ mark)

After 4 orders how much might he have ordered all in all?

_____ litres

($\frac{1}{2}$ mark)

After 5 orders how much might he have ordered all in all?

_____ litres

($\frac{1}{2}$ mark)

If Bill went on ordering forever how much might he have ordered in total approximately?

_____ litres

($\frac{1}{2}$ mark)

Q6)

(a) How many different letters are there in the word "mathematician"?

(1 mark)

(b) Cross out the word(s) that cannot be made using the letters in the above word "Mathematician" from the list below.

Manitha, Mahinda, Mahima, Maniac

(1 mark)

Q7) Carlie is deciding what to wear to school.

She has a blue and a red shirt, and she has a green, a red, a black, and two blue skirts.

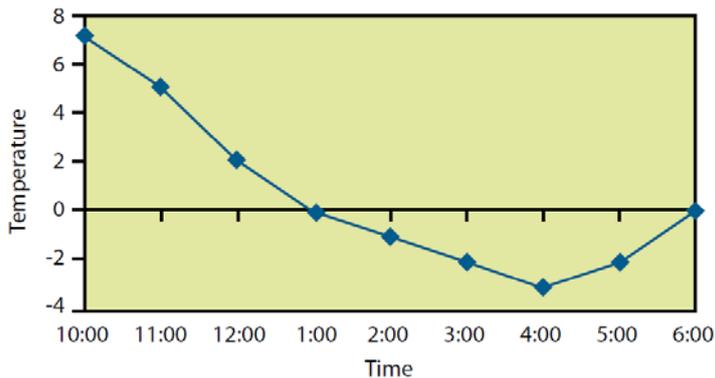
If she can only wear different colour combination of shirt and skirt, how many different combinations can Carlie pick?

Answer: _____

(1 mark)

Q8) Look at this graph. Temperatures are in degrees Celsius (°C).

Overnight temperature



(a) What type of the graph is this?

(½ mark)

(b) How long did the temperature stay above 0°C?

(½ mark)

Q9)

(a) Find the sum of these numbers:

7 7.0 7.00 7.000

(½ mark)

(b) Workout the difference between the highest and lowest value in the above set of four numbers.

(½ mark)

Q10)

(a) Draw a ring around the fraction which is equal to **0.025**.

$\frac{1}{4}$ $\frac{1}{40}$ $\frac{1}{400}$ $\frac{4}{10}$ $\frac{4}{100}$

(1 mark)

(b) Add these fractions:

$\frac{1}{8}$ $\frac{6}{10}$ $\frac{5}{8}$ $\frac{3}{10}$

Answer: _____

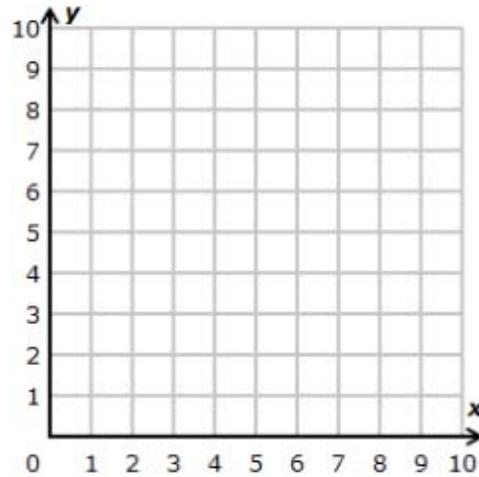
(1 mark)

Q11) Write these times in the 24 hour clock.

- (a) 10.30 in the morning
_____ (½ mark)
- (b) Quarter past 10 in the morning
_____ (½ mark)
- (c) 2 o'clock in the afternoon
_____ (½ mark)
- (d) 5pm
_____ (½ mark)
- (e) 6.30 in the evening
_____ (½ mark)
- (f) Midnight
_____ (½ mark)

Q12)

(a) Plot the points A (1, 3) and B (4,7) on the coordinate plane:



(2 marks)

(b) Find the distance AB if 1 unit represents 1 cm.

_____ (1 mark)

Q13)

(a) Complete the Tally chart :

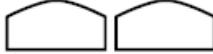
Class	Boys	Girls	Total
A	HHH HHH III		28
B	HHH HHH IIII	HHH HHH HHH II	31
C		HHH HHH IIII	29
D	HHH HHH III	HHH HHH II	

(1½ marks)

(b) In which classes are there more girls than boys?

(½ mark)

Q14) The pictogram shows the numbers of loaves of bread made by your friends.

Mr Ragu	
Mr Suresh	
Mr Shun	
Mr Sakthi	

Key:  represents 12 loaves of bread.

(a) Write down the number of loaves of bread made by Mr Shun.

(1 mark)

(b) If the total number of loaves made by all four are 144 complete the pictogram.

(1 mark)

Q15)

(a) Workout :

$$4 + 4 \times 4 + 4 + 4 \times 4 + 4$$

(1 mark)

(b) Complete:

$$\begin{array}{r}
 \square 4 \\
 \times 6 \square \\
 \hline
 25\square \\
 + 50\square 0 \\
 \hline
 52\square\square
 \end{array}$$

(1 mark)

Q16)

(a) How many containers do you need if you want to pack 412 tennis balls **evenly** so that each container has:

i. 4 balls?

_____ containers

(½ mark)

ii. 5 balls?

_____ containers

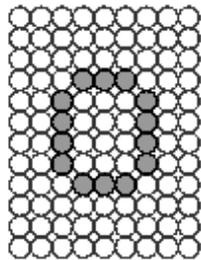
(½ mark)

(b) Divide the balls in 1 : 3 ratio.

(½ mark)

(c) You want to paint 740 blocks with these colours: red, orange, yellow, green and purple, in nearly equal numbers. How many should be coloured with each colour?

_____ (1/2 mark)
Q17)



The above is a part of a traffic signal of the letter “o” shown by a grid of tiny circular lights. The above letter can be bolded by **also** lighting any unlit cell immediately **left** to the cells currently lit. How many cells **need to be lit** to show the bolded “o”?

_____ (1 mark)

Q18)

(a) Find two consecutive numbers which add up to give 99.

_____ (1 mark)

(b) Find three consecutive numbers which add up to give 60.

_____ (1 mark)

(c) Find four consecutive numbers which add up to give 310.

_____ (1 mark)

(d) Find two consecutive even numbers whose product is 168

_____ (1 mark)

Q19) A new train arrives at Jaffna station with 100 passengers on board. $\frac{3}{5}$ of the passengers get off from the train in Jaffna to go home, of which 60 passengers are taken by the police for questioning.

How many passengers go home?

_____ (1 mark)

Q20)

(a) Look at this series:

V, VIII, XI, XIV, _____, XX, . .

What number should fill the blank?

_____ (1 mark)

(b) Look at this series:

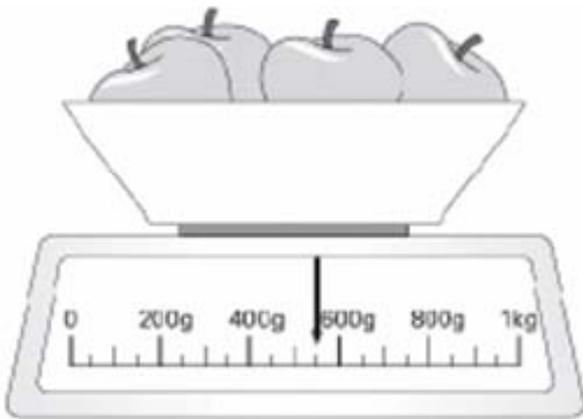
2, 1, $\frac{1}{2}$, $\frac{1}{4}$, . . .

What number should come next?

_____ (1 mark)

Q21)

(a)



What is the total weight of the apples?

(1 mark)

(b) The cost of a bag of apples is £1.20.



Assume you have enough number of coins in each of the above denominations and have no coins of any other denominations.

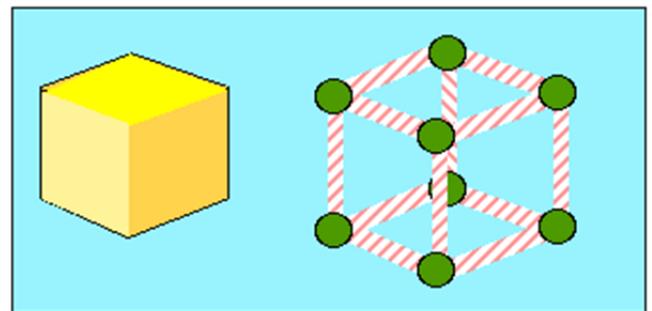
How can you pay for 1 bag of apples?

(½ mark)

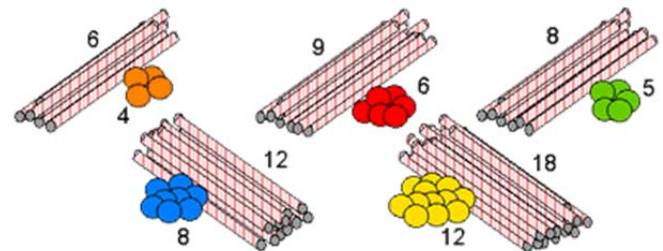
If you want to pay using as many coins as possible how will you pay?

(½ mark)

Q22) This shows a cube and a skeleton cube:



Here are some piles of modelling clay balls and straws:



Which of the piles needed to exactly make a triangular prism?

Circle the right pile.

(1 mark)

Q23)



Nature has lot of beautiful mathematical patterns of which the above are examples. Write the mathematical name of this pattern.

(1 mark)

Q24)

(a) I am thinking of a 3-D shape.

It has a circular base and has no other flat surfaces.

What is the name of the 3-D shape?

Answer: _____

(1 mark)

(b) Name the shape that has the following properties:

- Four equal sides
- Four right angles
- Opposite sides parallel
- Diagonals bisect each other at right angles
- Four lines of symmetry
- Rotational symmetry of order four

Shape name: _____

(1 mark)

(c) Name the shape that has the following properties:

- Two pairs of equal sides
- Four right angles
- Opposite sides parallel
- Diagonals bisect each other
- Two lines of symmetry
- Rotational symmetry of order two

Shape name: _____

(1 mark)

Q25) Complete the sentences below.

(a) Two angles are called **supplementary** when they ...

(1 mark)

(b) Two angles are called **complementary** when they ...

(1 mark)

(c) A straight line angle is ...

(1 mark)

(d) A reflex angle is ...

(1 mark)