



Mathematics Challenge 2014

25th January 2014

YEAR 4

Model Answers

We provide these model answers of our CWN: Mathematics Challenge 2014 exam to help parents.

Please note that for some problems there are more than one possible answer.

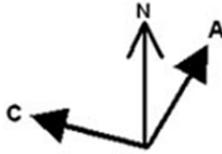
Some questions are open ended.

We strongly advise all children to practise the papers and think hard before looking at the answers provided.

Full answers and explanations will be provided on our feedback sessions.

In general, we expect units, directions, sensible answers and reasons in all questions.

Q1) Circle the correct estimate of each of the bearings labelled in this diagram.



(a) Estimate of bearing A:

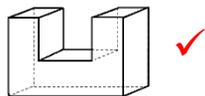
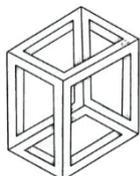
030° 080° 090° (1 mark)

(b) Estimate of bearing C:

255° **285°** 345° (1 mark)

Q2)

(a) Tick the shape(s) that are possible to create:

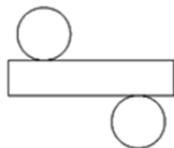


(1 mark)

(b) Name the 3D shapes of these nets:



cone



cylinder

(1 mark)

Q3) The dots on opposite faces of a standard die add up to 7.



(a) Imagine rolling one die. The score is the total number of dots you can see from **all angles**. You score 17.

Which number is face down?

4

(1 mark)

(b) Imagine rolling one die. This time the score is the total number of dots you can see from **any one angle**.

You score 15.

Which number is face down?

Accept either 1 or 2 or 3

(1 mark)

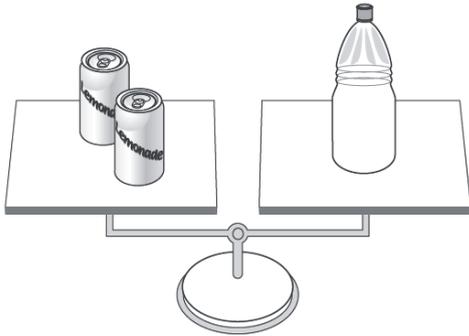
Q4) There are almost 40 marbles on John's table. When he counted in fours he found 3 left over. When he counted in fives he found 4 left over.

How many marbles are there in total?

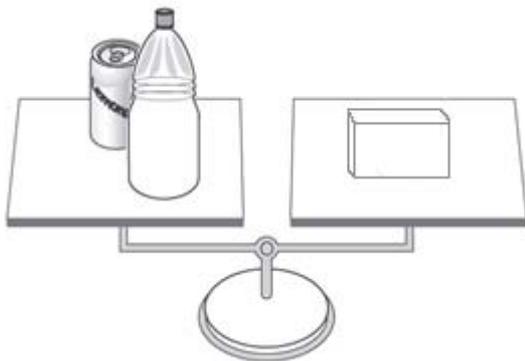
39

(1 mark)

Q5) 2 tins balance 1 bottle.



1 tin and 1 bottle balance 1 box.



(a) How many bottles do 12 tins balance?

6 (1 mark)

(b) How many boxes do 6 tins balance?

2 (1 mark)

Q6)

(a) In a cm ruler what is the distance between two marks marked as 4cm and 11cm?

7 cm (1 mark)

(b) How many whole numbers are there from 4 to 11?

8 (1 mark)

(c) There are seven lamp posts on a road. Between two lamp posts we can park 1 car. How many cars can we park?

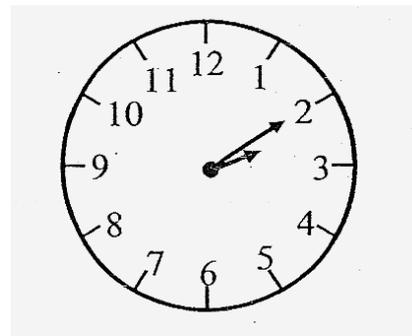
6 (1 mark)

(d) Work out the amount in between £22 and £47.



(1 mark)

Q7) Mohammed's Science lesson started at:



and finished at 5:05.
How long was his Science lesson?

2 h 55 min (1 mark)

Now write your answer in minutes.

175 min (1 mark)

Q8)

(a) Put brackets in the calculation below to make it correct.

$$2 + 16 \div (2 + 6) = 4$$

(1 mark)

(b) Make 64 by multiplying **the same number** in **two** different ways.

For example:

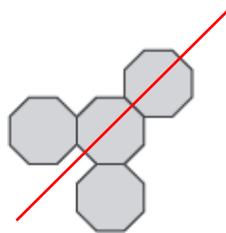
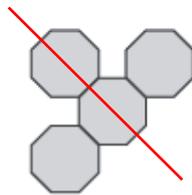
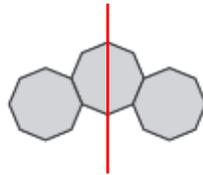
$$\boxed{8} \times \boxed{8} = 64$$

1. $4 \times 4 \times 4$

2. $2 \times 2 \times 2 \times 2 \times 2 \times 2$

(1 mark)

Q9) Use a ruler to show all lines of symmetry in the following three diagrams:



(1 mark)

Q10) Approximate:

(a) 246 to the nearest TEN.

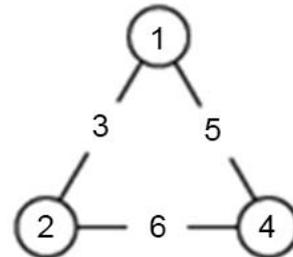
250 (1 mark)

(b) 246 to the nearest HUNDRED.

200 (1 mark)

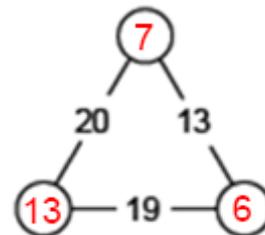
Q11) This is how a number triangle works: just add two numbers at the end of a line to get the number between them.

For example:



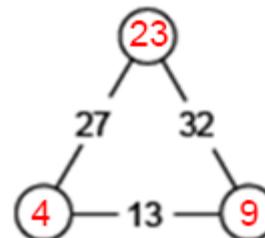
Here are some with the end numbers missing. Write the missing numbers in the circles.

(a)



(1 mark)

(b)



(1 mark)

Q12)

(a) Raman thought of a number. He doubled it and added 6, getting the answer 60.

What was his number?

27 (1 mark)

(b) Sarah thought of a number. She added 5 and then halved the result. Her answer was 60.

What was the number she first thought of?

115 (1 mark)

(c) Henry thought of a number. He squared it and took away 4, getting the answer 60.

What was his original number?

Accept either 8 or -8 (1 mark)

(d) Tyrone thought of a number. He squared it, subtracted 1 and then halved the result, getting 60.

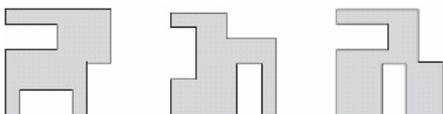
What number did he start with?

Accept either 11 or -11 (1 mark)

Q13) Here is a shape.



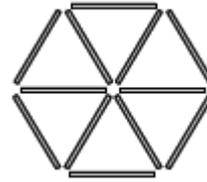
One or more of the shapes below are similar to the shape above.



Tick the similar shape(s).

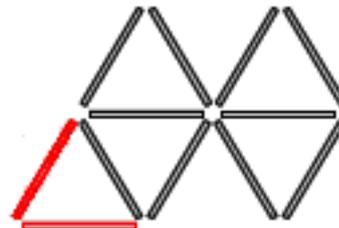
(1 mark)

Q14) Here is a hexagon consisting of 6 small identical small triangles.



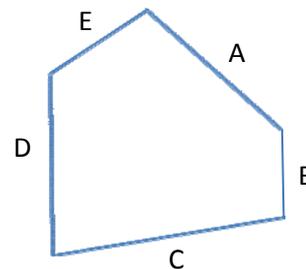
By moving just two matchsticks to another location, make a shape consisting of just **5 triangles**.

Accept any shape that takes matchsticks on 2 opposite sides and moves them to the outside, for example:



(1 mark)

Q15) Use ruler to identify the two sides that have equal lengths.



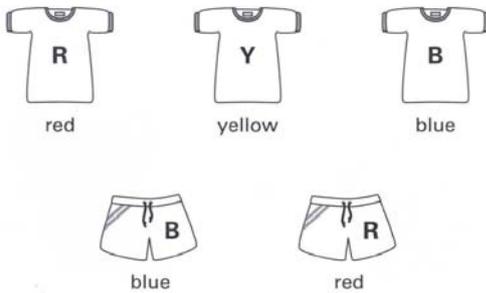
The equal sides are **A** and **D**.

Their length is **24** mm.

Accept any answer between **23** and **25mm**.

(2 marks)

Q16) Mark has these shorts and T-shirts:



(a) If he cannot choose shorts and T-shirt of the same colour, how many different ways he can select shorts and a T-shirt?

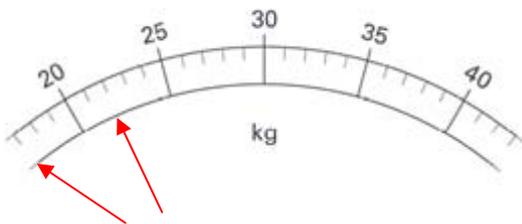
4 (1 mark)

(b) If he can choose any colour of shorts and T-shirts, how many different ways he can select shorts and a T-shirt?

6 (1 mark)

Q17) Ahmed and Mary have different weights and volumes.

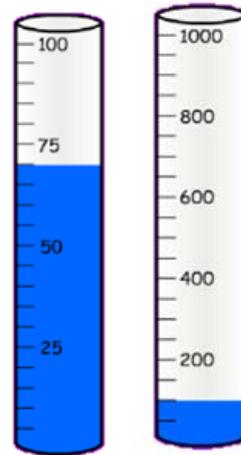
(a) Draw two arrows such that the sum of their weights do not exceed the range indicated in the scale.



Accept any two arrows between 17 and 22. Check for total not exceeding 43 kg.

(1 mark)

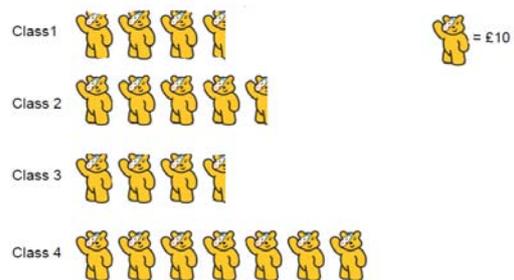
(b) Below there are two volumetric scales in ml. Read the scales carefully and workout the difference of two volumes.



The difference is 30 ml.

(1 mark)

Q18) This pictogram shows the money collected for our children's charity.



(a) How much money did Class 4 raise for our children's charity?

£ 70

(b) How much more money did Class 4 raise than Class 1?

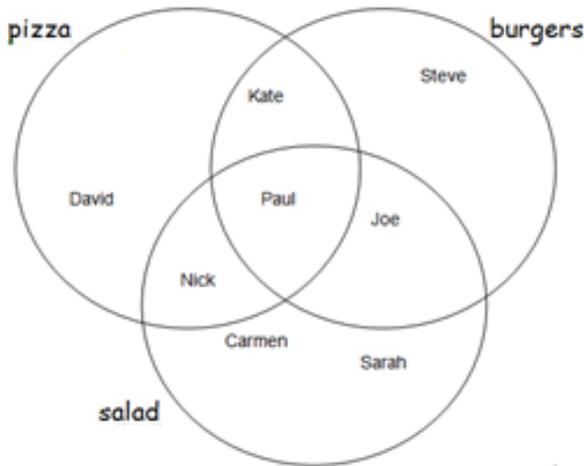
£ 35

(c) How much money was raised altogether?

£ 185

(3 marks)

Q19) Look at the Venn Diagram of food and answer the questions below.



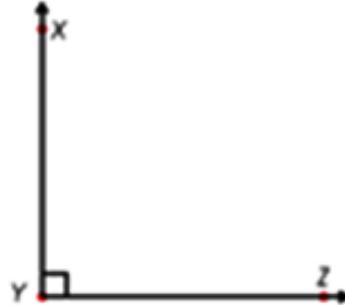
- (a) Who likes all three foods?
Paul (1 mark)
- (b) Who likes burgers but not salad?
Kate and Steve (1 mark)
- (c) Who likes both burgers and salad?
Paul and Joe (1 mark)

Q20)

- (a) Express three and a half as an improper fraction:
 $\frac{7}{2}$ (1 mark)
- (b) Express three and a half meters as a decimal:
3.5 m (1 mark)

Q21) Circle the **type** of angle, its size and then name it using a **3 letter format** (e.g. \widehat{ABC}).

(a)



Type of angle:

Acute Obtuse **Right**

Size:

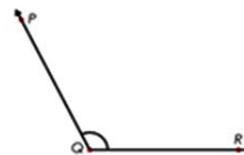
80° **90°** **100°**

Angle name:

\widehat{XYZ}

(1 mark)

(b)



Type of angle:

Acute **Obtuse** Right

Size:

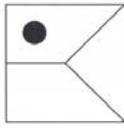
45° **90°** **120°**

Angle name:

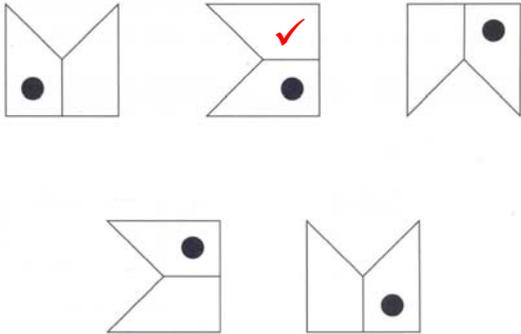
\widehat{PQR}

(1 mark)

Q22) Look at this shape:



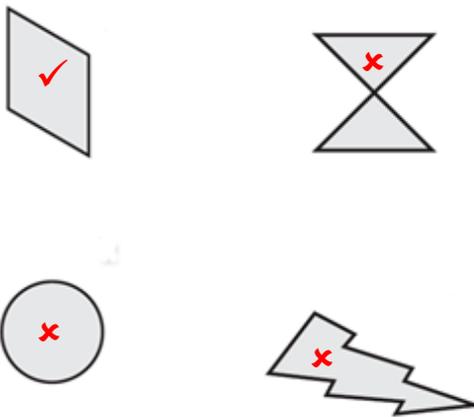
Tick the shape that indicates **half-turn** of the above:



(1 mark)

Q23) Tessellation is a pattern made with identical shapes with no gaps between the shapes and no overlapping.

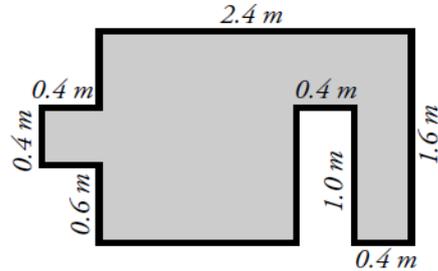
Tick (✓) if each shape can tessellate. Put cross (✗) if it cannot.



(1 mark)

Q24)

(a) Find the **perimeter** of the polygon. Not drawn to scale.



$$(2.4\text{m} + 1.6\text{m} + 0.4\text{m} + 1.0\text{m}) \times 2$$

$$= 10.8 \text{ m}$$

(2 marks)

(b) The perimeter of a square is numerically equal to its area.

What is the length of the square?

4 m/cm/ any length measure

(1 mark)

Q25) The graph shows the number of hours John worked in a week.



Work out the **mean** number of hours John worked in a day:

4 hours

(1 mark)