# Pocklington School 11+ Mathematics Sample 2 For 2020

Name	

- Time Allowed: 1 Hour
- Calculators are not allowed.
- You are advised to show your working in the spaces provided and write your answers in the spaces provided.
- Use blue or black pen.
- If you make a mistake, cross it out but do not use tippex.
- The E questions at the end of the paper are designed to be more challenging.

1. Christine has been given a large bar of chocolate which has 24 squares in it like this:
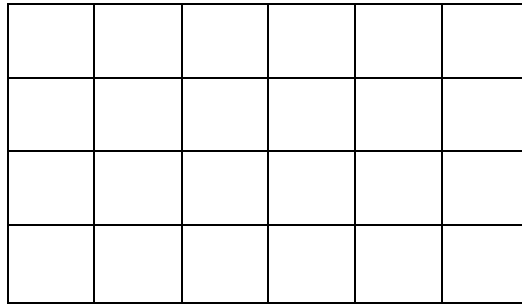
a. She eats half of the bar of chocolate.

    How many squares does she eat?

    _____ squares (1 mark)

b. Christine gives away the remaining half to her friend Adam.

    Adam eats half of what Christine gave to him. How many squares does he eat?

    _____ squares (1 mark)

c. Adam saves the rest of his chocolate for later.

    What fraction of the whole bar of chocolate is now left to eat later?

    _____ (2 marks)

d. Complete the sentence below by filling in the gap with either the word SMALLER or LARGER.

    $\frac{1}{6}$ is _____ than $\frac{1}{4}$

    (1 mark)

2.   4721 + 527

_____(2 marks)

3.   5874 – 67

_____(2 marks)

4.   12 × 43

_____(2 marks)

5.   2060 ÷ 4

_____(2 marks)

6.   3.57 + 0.51 + 30.01

_____(2 marks)

7.   341 − 71.1

_____(2 marks)

8.   1.5 × 4.2

_____(3 marks)

9.   4122 ÷ 9

_____(2 marks)

10.   Triangular numbers can be found by this rule:

0 + 1 = 1 so **1** is a triangular number

0 + 1 + 2 = 3 so **3** is a triangular number

0 + 1 + 2 + 3 = 6 so **6** is a triangular number

0 + 1 + 2 + 3 + 4 = 10 so **10** is a triangular number

a.   What is the next triangular number? You must show your working out.

_____ (2 marks)

b.   Write down one more triangular number which is different from the ones above.

_____ (1 mark)

11.   Fill in the gaps below:

a. 8 m = _____cm

(1 mark)

b. 39 mm = _____ cm

(1 mark)

c. 8.5 kg = _____grams
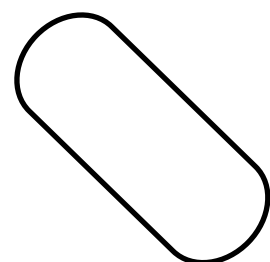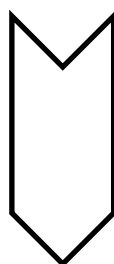
(1 mark)

d. 3200 ml = _____litres

(1 mark)

12.   Draw in any lines of symmetry onto the 3 shapes below using a ruler.

(3 marks)

13.   Work out the following answers:
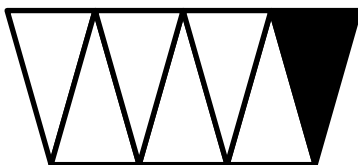
a. $\dfrac{2}{9} + \dfrac{5}{9}$

_____(1 mark)

b. $\dfrac{5}{11} - \dfrac{3}{22}$

_____(2 marks)

c. $2\dfrac{1}{5} + \dfrac{1}{4}$

_____(3 marks)

14.   What fraction of this shape is shaded?

_____ (1 mark)

15.   Fill in the missing gaps below to show the missing number in the sequence:

   a. 2, 9, 16, 23, 30, _____

   b. 1, 2, 4, _____, 16

   c. 28, 23, 18, 13, _____

   d. 200, 100, 50, 25, _____

                                                                              (4 marks)

16.   On Tuesday, outside Debbie's house the temperature is 12 ^{0}C. Inside the house it is 21 ^{0}C.

a.   What is the difference in temperature from the outside temperature to the inside?

                                                               _____ ^{0}C (1 mark)

b.   On Wednesday, the temperature outside the house had dropped by 15 ^{0}C.

       What is the temperature on Wednesday?

                                                               _____ ^{0}C (1 mark)

17.   Fill in the gaps below to make these fractions equivalent:

   a. $\dfrac{2}{9} = \dfrac{\square}{36}$ b. $\dfrac{8}{\square} = \dfrac{24}{45}$

                                                                              (2 marks)

18. Work out the following:

a. $40 \div 2 + 17$
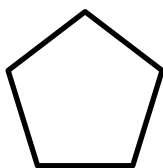
_____(2 marks)

b. $(6 \div 2 \times 3) - (15 \div 5)$

_____(2 marks)

c. $3 \times 6 + 3 + 20 \div 4$

_____(2 marks)

19. Write down the mathematical name for the shapes below:
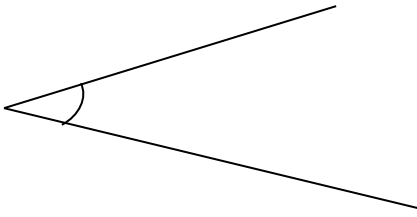

_____ (1 mark)

_____ (1 mark)

20.   This is an acute angle:

In the space below, draw and label an obtuse angle:

(1 mark)

21.   A rectangular field has width 75m and length 100m.

a.   Calculate the perimeter of the field.

Perimeter = _____ m (2 marks)

b.   Calculate the area of the field.

Give the units for your answer.

_____ _____ (3 marks)

22. Below is a bar graph showing average daily temperatures (in ^{0}C) in London and Manaus.

Look at the graph and answer the questions below.
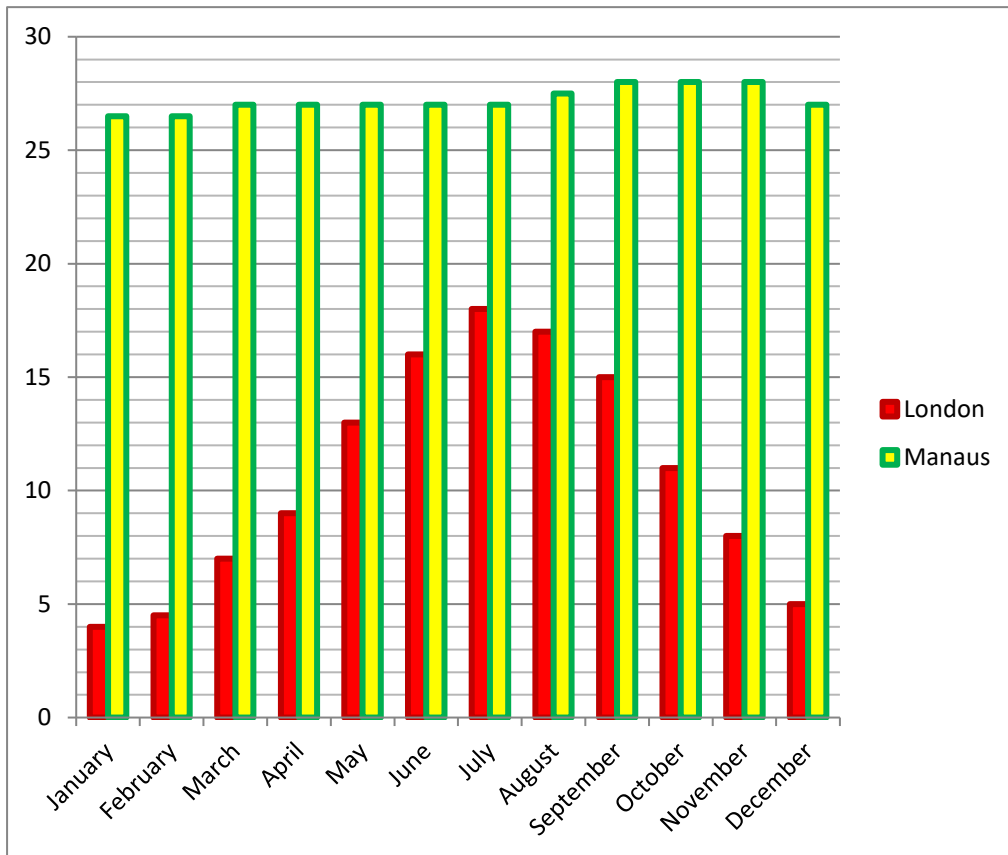
a. Which was the coldest month in London?

_____ (1 mark)

b. What is the highest average temperature recorded in Manaus?

_____ (1 mark)

c. For how many months was the average temperature in London higher than 10˚C?

_____ (1 mark)

23. It takes Bertie the Baker 25 minutes to prepare a cake mix and then 40 minutes to bake the cake in the oven.

a. How long is this in hours and minutes?

_____ hours and _____ minutes (1 mark)

Bertie can only bake one cake at a time, but while one cake is baking in the oven, he can prepare the next cake.

b. What is the minimum total time he will need to bake 5 cakes?

Show all your working.

_____ hours and _____ minutes (3 marks)

24. Charlotte is given an allowance of £30 per month.

   She spends 25% of it on her mobile phone.

a. How much is this?

£_____ (2 marks)

   She spends $\frac{1}{6}$ of it on snacks.

b. How much is this?

£_____ (2 marks)

   £10 is spent on books.

c. What fraction of the total is this?

_____ (2 marks)

25. If it costs £1.50 for 3 identical yoghurts, how much would it cost to buy 4 of them?

£_____ (2 marks)

26. Two angles in a triangle are 23^0 and 98^0.

What is the missing angle?

_____ ^{0} (2 marks)

27. Complete the blank to make this a true statement:

$4 \times 60 =$ _____ $\times\, 3$

(2 marks)

E1.   Integers are whole numbers. In this question we will only be using POSITIVE integers.
       A pair of integers that add up to 10 is 1 and 9.

a.   Write down all the other pairs of integers that add up to 10. Do not use zero.

                                                                    _____ and _____

                                                                    _____ and _____

                                                                    _____ and _____

                                                                    _____ and _____
                                                                    (2 marks)

b.   What is the largest product (when you multiply them together) you can achieve from
       two integers that add up to 10?

                                                            _____ (1 mark)

c.   Which two integers that add up to 20 will give the largest product?

                                                      _____ and _____ (1 mark)

d.   Write down 6 different ways of adding three integers to give 10. You can use
       numbers twice in each combination if you wish. Do not use zero.

_____ and _____ and _____   _____ and _____ and _____

_____ and _____ and _____   _____ and _____ and _____

_____ and _____ and _____   _____ and _____ and _____
                                                                    (3 marks)

e.   What is the maximum product of three integers that add up to give 10?
       Show the three numbers in your working.

                                                            _____ (3 marks)

E2.

On the planet Vuv there are two sorts of creatures. The Zios have 3 legs and the Zepts have 7 legs.

The great planetary explorer Nico, who first discovered the planet, saw a crowd of Zios and Zepts. He managed to see that there was more than one of each kind of creature before they saw him. Suddenly they all rolled over onto their backs and put their legs in the air.

a. He counted 52 legs. How many possible Zios and how many Zepts were there?

You must show all your working to gain all the marks.

_____ Zios and _____ Zepts

OR

_____ Zios and _____ Zepts

(4 marks)

On a different exploration, Nico went to the planet Gup and here there were two different sorts of creatures. The Wegs have 4 legs and 3 arms. The Wafs have 6 legs and 2 arms.

While he was observing a mixed group of these two sorts of creatures, he counted 134 legs altogether and he then counted 73 arms altogether.

    b.   How many Wegs and Wafs were in this group?

You must show all your working to gain all the marks.

_____ Wegs and _____ Wafs

(6 marks)

END OF ASSESSMENT