EMANUEL SCHOOL ENTRANCE EXAMINATION

Mathematics

Sample Examination Paper

Hill Form (10+) Entry

Time allowed : 1 hour

1.	Your first name **and** surname.
2.	Your present school.
3.	Boy/girl:

Fill in the boxes above and read the following carefully :-

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1. **There are 28 questions.** You should attempt all of them in any order you like.
2. **Write neatly and show all your working**. It may be possible to give you marks if your working makes sense even if your final answer is wrong.
3. **Put your answer in the space provided.** If you think you have finished check that you have answered all the questions.
4. **Keep an eye on the time.** Work carefully and steadily. If you find yourself spending too long on a question move on to another one.
5. **You may NOT use a calculator.**

Good luck!

1. Mental Arithmetic

Do these questions in your head. So do not show any working. Write the answers in the space beside the question.

a) 9 + 6 ……

b) 15 - 7 ……

c) 11 x 7 ……

d) 24 ÷ 8 ……

e) 13 x 3 ……

f) 50 - 18 ……

g) 16 + 19 ……

h) 72 ÷ 9 ……

i) 7 x 7 ……

j) 78 ÷ 6 ……

2. Do the following

a)
$$\begin{array}{r} 42 \\ +\ 56 \\ \hline \\ \hline \end{array}$$

b)
$$\begin{array}{r} 85 \\ -\ 37 \\ \hline \\ \hline \end{array}$$

c) 785
+ 541

d) 867
- 382

3. Work out 53 + 3209 + 664

Answer _____

4. Do the following multiplications

a) 17
x 3

b) 56
x 4

c) 732
x 9

5. Work out the following

a) $4\overline{)2748}$

Answer _____

b) 17144 divided by 8

Answer _____

6. Add together

two thousand three hundred and seven
AND
one thousand and twenty-four.

Answer _____

7. When two numbers are added together the total is 32.
When the same two numbers are multiplied the result is 240.
Find the two numbers.

Answer _____ and _____.

8. What number must fit into the squares to make these sums correct?

a) 34 + ☐ = 91

b) 72 — ☐ = 39

c) ☐ x 7 = 119

d) 448 ÷ ☐ = 8.

9. Sam takes a £20 note to a restaurant. He buys a burger for £3.99, a milk shake for £1.65, and a fudge sundae for £1.80

a) How much money does he spend altogether? £_____

b) How much change should he get from the £20 note? £ _____

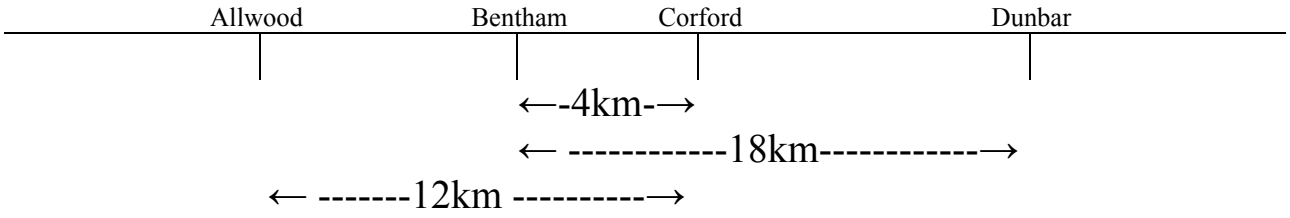
10. a) 4 British coins in Jo's pocket add up to 73p.
What are they?

Answer _____

b) 5 British coins in Arati's pocket add up to 61p.
Three of the coins are the same.
What are the 5 coins?

Answer _____

11. On a very long straight road there are four villages:
Allwood, Bentham, Corford and Dunbar, which are shown in the diagram below.



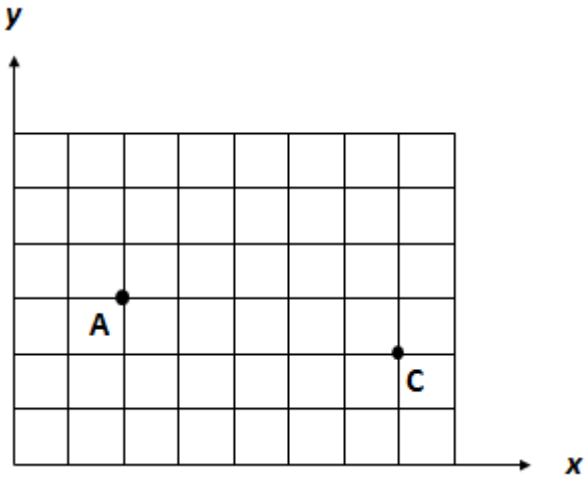
The arrows show distances between villages.

Find the distances from

a) Corford to Dunbar Answer _____

b) Allwood to Dunbar Answer_____

12.



On the axes shown A is the point (2,3)

a) Write down the coordinates of the point C. (,)

b) Mark on the diagram the point B which is (5,5).

c) Mark on the diagram the point D so that ABCD is a square.

13.

	Angola	Namibia	Zimbabwe	Zambia
Population	10 002 000	1 203 000	9 369 000	8 456 000
Area in square kilometres	1 246 700	823 168	390 759	752 614
Highest mountain in metres	2610	2579	2592	2164

The table above shows some information about four African countries.
Answer the following questions using the table.

a) Which country has the largest area? _____

b) Which country has the smallest population? _____

c) Which country has the third highest mountain? _____

d) Which country is the most densely populated
(most people for each square kilometre of land)? _____

14. Sophie thinks of a number, doubles it and adds 8.
The answer was 26. What was the number she was thinking of?

Answer _____

15. Find the next two numbers in each of the following sequences

a) 1, 8, 15, 22, 29, ____, ____

b) 4, 6, 9, 13, 18, ____, ____

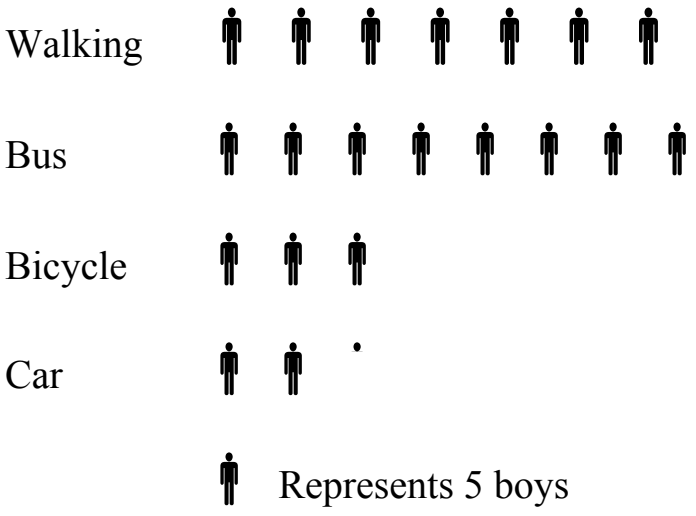
c) 96, 48, 24, 12, 6, ____, ____

d) 3, 4, 7, 11, 18, 29, ____, ____

16. Below is a pictogram showing the method by which year seven boys come to school. How many

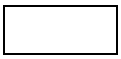
a) come by bus Answer _____

b) come by car Answer _____



17.





a) What is the area of the rectangle

Answer _____

b) How many small rectangles of the size shown will fit into the rectangle above?

Neither diagram is drawn to scale.

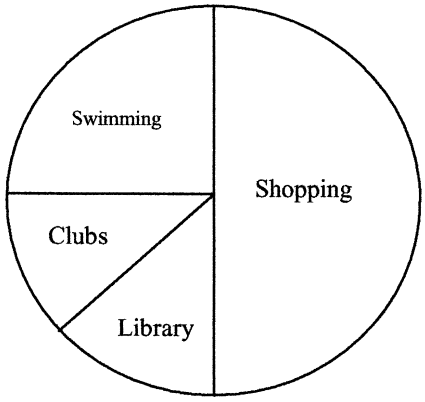
Answer _____

18.

In the British Army there are 4500 men who are taller than 180 cms. Of these 750 are taller than 190 cms. How many men are there who are between 180 and 190 cms tall?

Answer _____

19.



The pie chart shows the activities of a group of children on a Saturday morning. 8 children went to the library.

a) How many children went swimming? _____

b) How many children went shopping? _____

c) How many children were there altogether in the group? _____

20.

When aunt Jane comes to visit, Tom always goes out to play. Last Sunday, aunt Jane came to visit. It was raining.

The following sentences are either TRUE, or FALSE, or NOT CERTAIN. Ring the one you think applies to each sentence.

a) Tom went out to play. (True / False / Not certain)

b) Aunt Jane and Tom both went out to play. (True / False / Not certain)

c) As it was raining Tom stayed inside last Sunday. (True / False / Not certain)

21.

A train leaves London at 10.35 a.m. and arrives in Exeter 3 hours and 35 minutes later. What time does it arrive?

Answer _____

22.

576 x 8 = 4608

23040 + 4608 = 27648

Without doing any more calculations give the answers to:

a) 576 x 4 = _____

b) 576 x 40 = _____

c) 576 x 48 = _____

d) 27,648 - 23,040 = _____

23.

A list of angles is given below

179°, 10°, 47°, 273°, 81°, 330°

How many acute angles are there in the list? _____

24. A rule for a number sequence is 'multiply by 2 and subtract 7'.

a) Write down the next number in the sequence

8→ 9→ 11→ 15 _____

b) Here is part of another number sequence with the same rule. Write down the first number which is missing.

_____ → 17 → 27 → 47 → 87

25. Put a single number in the boxes to make each of these sums correct

a)

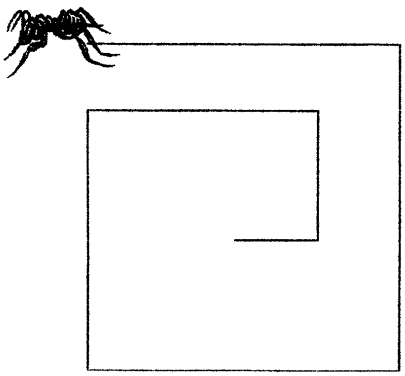
$$\begin{array}{r} 6\ \square\ 5 \\ +\ 2\ \ 2\ \ 7 \\ \hline 0 \end{array}$$

b)

$$\begin{array}{r} 5\ \square\ 4 \\ -2\ \ 7\ \ 9 \\ \hline 0 \end{array}$$

26.

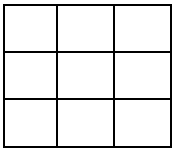
The diagram shows Woody the ant setting off for a walk he took recently in search of food. On this journey Woody walked a certain distance and turned right. Each time he turned right he walked 2 metres less than he did the time before.



On the last part of his journey before stopping he walked one metre. How far did he walk altogether?

Answer _____

27.



Draw out a 3 by 3 grid like that shown.
Place the numbers 2 2 2 3 3 3 4 4 4 in it so that when any line of three numbers is added up in any direction (including diagonally), the total is always 9.

Answer _____

28. Choose from this set of numbers

5, 6, 7, 8, 9, 10, 11, 12

a) two multiples of 6 Answer _____ and _____.

b) two factors of 18 Answer _____ and _____.

c) a square number Answer _____ and _____.

d) two prime numbers Answer _____ and _____.

Well done! This is the end of the test.

Now check your answers carefully.