BENENDEN

Lower School Scholarship Paper 2016

MATHEMATICS

11+

1 Hour

Name: _____

School: _____

Date: _____

Instructions to Candidates:

- Calculators may **not** be used
- Attempt all questions
- Show ALL working
- Check your answers for accuracy
- Total marks for this paper = 50

1) a) $3 \times 2 + 4$

(1)

b) $12 \times 14 - 6 \times 7$

(2)

c) $10 \times (3 + 2) \times 8$

(2)

2) Calculate 5928×13

(3)

3) Calculate, giving answers as mixed numbers if appropriate.

a) $\frac{3}{7} + \frac{2}{5}$

(2)

b) $4\frac{2}{3} - 1\frac{5}{6}$

(2)

c) $2\frac{1}{9} \div 3\frac{1}{6}$

(2)

4) A set of cards are numbered from 1 to 20. How many of the cards do **not** show prime numbers?

(2)

5) Solve each of the following equations:

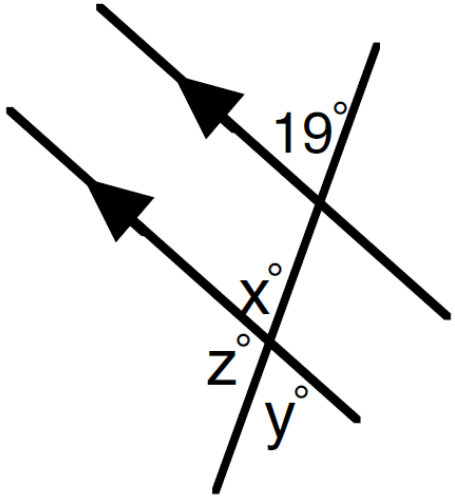
a) $3t + 7 = 34$

(1)

b) $5x + 2 = 3x + 18$

(2)

6) a) Find each of the angles labelled with letters:



i) x = ……..

ii) y = ……..

ii) z = ……..

(4)

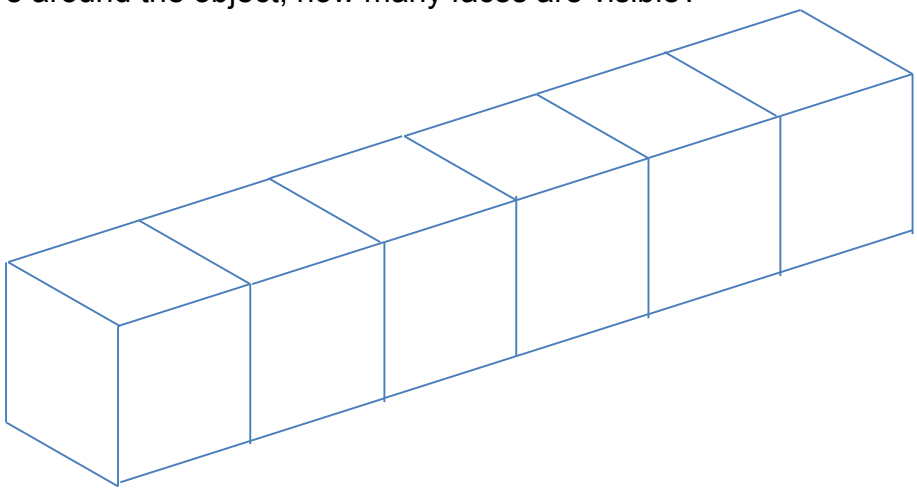
7) Part of a number sequence is shown.

… , 25, 28, 31, …

If the last figure shown is the 10^{th} term in the sequence, what was the first?

(3)

8) a) Six cubes are glued together and then placed on the floor. Given that you can move around the object, how many faces are visible?



(1)

b) If each square is $4cm^2$

i) What is the length of each edge?

ii) What is the volume of the shape?

(4)

10) A sequence is made by adding pairs of consecutive numbers.

E.g.

$1 + 2 = \mathbf{3}$
$2 + 3 = \mathbf{5}$
$3 + 4 = \mathbf{7}$

a) What will the next three values be?

(1)

b) What will the tenth value be?

(1)

c) What will the nth value be?

(2)

Instead of adding two consecutive numbers, I add three consecutive numbers.

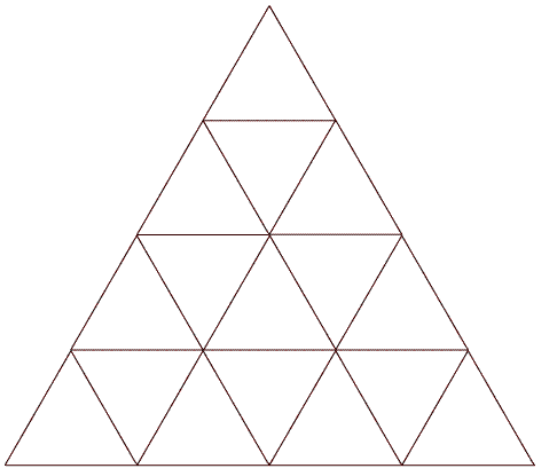
d) What will the first three values be?

(2)

e) What will the new nth term be?

(2)

11) How many triangles can you identify in the diagram below?



(4)

12)

a) Shop A are selling football shirts at 20% discount while shop B are offering a fifth off all sporting goods. Which shop should I buy my Everton shirt from?

A B Both the Same

(2)

b) An experiment has a 0.9 probability of success if carried out by scientist A while scientist B fails once every eleven tries. Who would you choose to do the experiment?

A B Both the Same

(2)

c) The road up hill A has a gradient of $\frac{20}{25}$ while the road up hill B has a gradient of $\frac{16}{20}$. Which hill is steeper (has the larger gradient)?

A B Both the Same

(3)

END OF EXAM