LONG CLOSE SCHOOL

Practice Paper

Year 7 Mathematics Scholarship Paper

Name: _____

School: _____

1 Work out

a 128 + 46

……

b 6 + 88 + 101

……

(2 marks)

2 The highest mountain in England has a height of 978 metres.
The highest mountain in the world has a height of 8848 metres.
Work out the difference between these two heights.

……m

(2 marks)

3 Work out

a 8 × −4

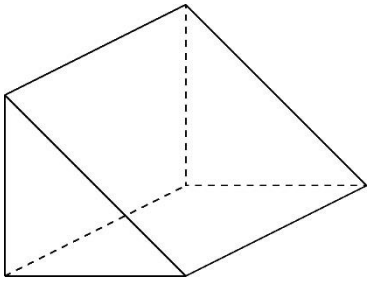
……

b −30 ÷ 10

……

(2 marks)

4 Here is a triangular prism.



Write down the number of

a edges

……

b faces

……

c vertices

……

(3 marks)

5 Change

a 3 litres to ml

……ml

b 2500 cm^3 to litres

……litres

(2 marks)

6 There are 80 children in a sports club.

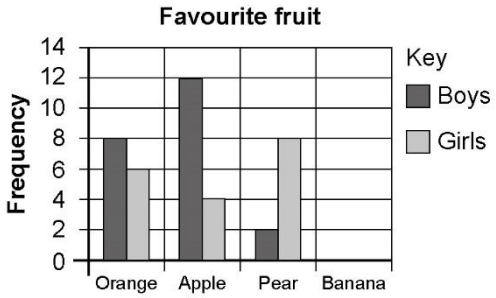
There are 20 adults in the sports club.

Write down the ratio of children to adults. Give your answer in its simplest form.

……

(2 marks)

7 This dual bar chart gives some information about the favourite fruit chosen by some students.



Six boys and 12 girls chose banana.

a Show this information on the chart.

b Which fruit was chosen by most boys?

……

c How many students chose orange as their favourite fruit?

……

(3 marks)

8 Simplify

a $4x + 3x$

……

b $5y - 2y + y$

……

(2 marks)

9 Solve

a $p + 5 = 8$

……

b $3t = 12$

……

(2 marks)

10 A machine makes chocolate bars.

You can use this formula to work out T, the total number of bars it makes.

$T = n \times h$

where n is the number of bars made each hour and h is the number of hours the machine is working.

On Monday, the number of bars made each hour was 200 and the machine was working for 8 hours.

a Work out the value of T.

……

On Tuesday, the machine made 900 bars in total and the machine was working for 10 hours.

b Work out the value of n.

……

(4 marks)

11 Work out

a 4.2 + 3.91

……

b 3.6 − 0.42

……

(2 marks)

12 There are 0.23 grams of salt in a packet of crisps.

Work out the mass of salt in 6 packets of crisps.

……grams

(1 mark)

13 Work out

a 0.4 × 0.3

……

b 0.2 × 0.04

……

(2 marks)

14 Write each number correct to 2 decimal places.

a 2.4509

……

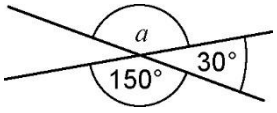
b 17.0561

……

(2 marks)

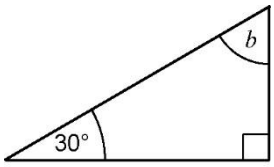
15 Work out the size of the lettered angles in the diagrams.

a



angle a = ……°

b



angle b = ……°

(2 marks)

16 Work out

a 3^3

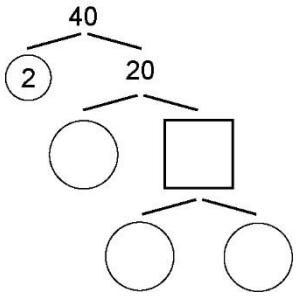
……

b $\sqrt{25}$

……

(2 marks)

17 a Complete this factor tree.



b Use your completed factor tree to write 40 as the product of its prime factors.

……

(3 marks)

18 Here is a list of numbers.

14 15 16 17 18

a Which number is a square number?

……

b Write down the square root of this square number.

……

(2 marks)

19 Here are the first four terms of a simple sequence.

2, 6, 10, 14, …

a Write down the next term in this sequence.

……

b Write down the term-to-term rule for the sequence.

……

(2 marks)

20 The term-to-term rule for a sequence is ‘multiply the previous term by 2’.

The first term is 3.

Write down the first four terms of the sequence.

……

(2 marks)

21 The nth term of a sequence is $5n$.

Work out the 10th term of this sequence.

……

(1 mark)

22 Work out

a 20% of £50

£……

b 25% of 80 grams

……grams

(2 marks)

23 Three fifths of the adults at a party are male.

There are 40 adults at the party.

How many of the adults are male?

……

(1 mark)

24 Work out

a $\frac{1}{2} + \frac{1}{8}$

……

b $\frac{2}{5} - \frac{1}{6}$

……

(2 marks)

25 Keeley got 40 marks out of 50 in a test.

Sam got $\frac{3}{4}$ of the marks in the same test.

Who did better, Keeley or Sam? Show your working.

……

(2 marks)

26 Here is a list of words used in probability.

impossible unlikely evens likely certain

Use one of the words from the list to describe the likelihood that

a it will rain in London in the next year

.....

b when you throw an ordinary dice that it will land on 7

.....

(2 marks)

27 There are 14 boys and 15 girls in a class.

A student is selected at random from the class.

Work out the probability that the student will be a boy.

.....

(1 mark)

1 Tim mixes butter and sugar in the ratio 2 : 3 to make butter icing.

a What fraction of butter icing is butter?

……

Tim has 600 grams of butter.

b Work out the amount of sugar he needs.

……grams

(2 marks)

2 A sweetshop sells 5 bags of sweets for £3.80

a Assuming that there is no discount for quantity, work out the price of 8 bags of sweets.

£……

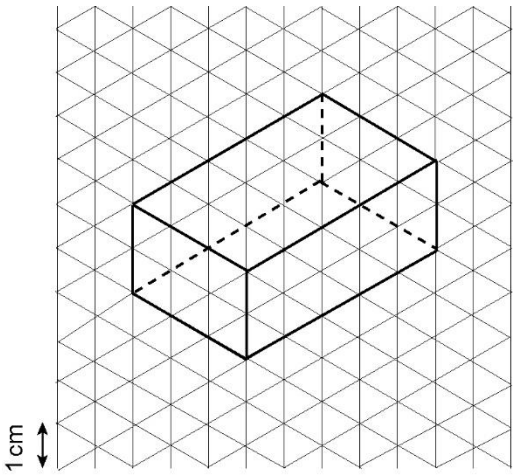
Sylvie has £10

b Work out how many bags of sweets she can buy.

……

(4 marks)

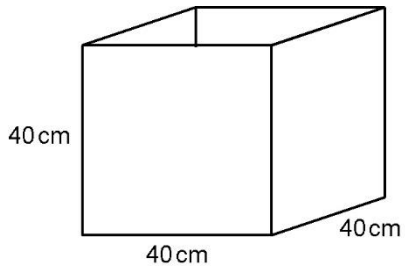
3 Work out the volume of this cuboid.



……cm^3

(2 marks)

4 Here is an open cube.



Jules wants to paint the inside of the cube.

a Sketch a net of this open cube.

b Work out the area that Jules has to paint.

……cm^2

(3 marks)

5 Here are the times in minutes it took for 20 children to walk to school.

10 12 18 5 6 12 18 13 7 12

8 13 19 2 7 9 16 17 4 3

a Complete the grouped frequency table for this information.

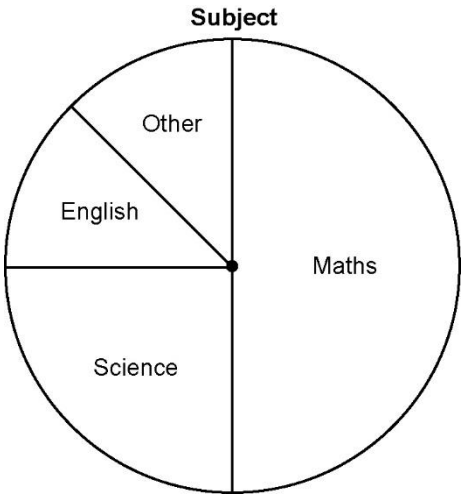
Time (minutes)		
0–5		
6–10		

b Write down the modal class.

……minutes

(4 marks)

6 The pie chart shows the favourite subjects of a group of 40 students.



a Write down the name of the subject most students said.

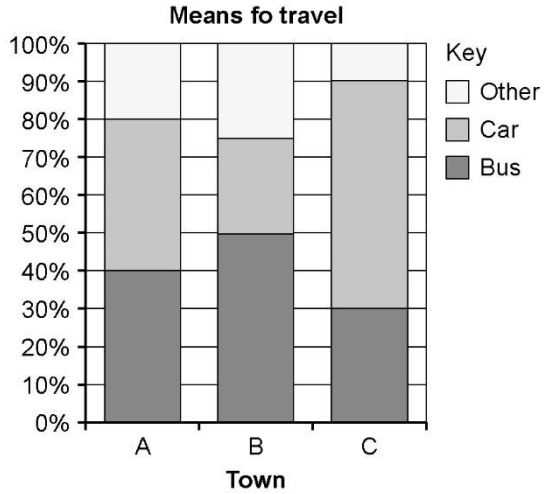
……

b How many students said English was their favourite subject?

……

(2 marks)

7 The compound bar chart gives information about how people travel to work in three towns: A, B and C.



a What percentage of people travelled to work by bus in town B?

……

b What percentage of people travelled to work by car in town C?

……

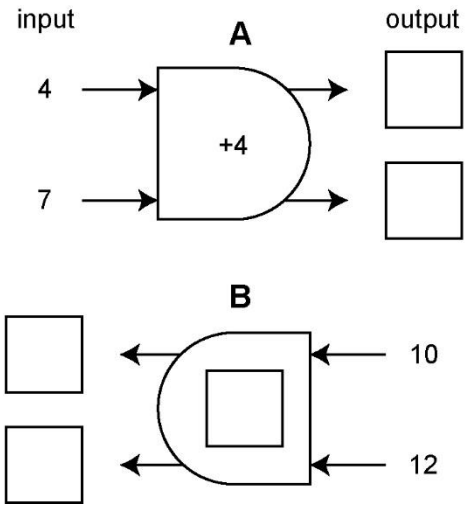
Two thousand people travelled to work in town A.

c How many people travelled by bus?

……

(4 marks)

8 Here are two function machines, A and B.



a Complete function machine A.

Function machine B is the inverse of function machine A.

b Complete function machine B.

(4 marks)

9 Expand

a $4(x - 2)$

……

b $5(3 + y)$

……

(2 marks)

10 Simplify

a $6x + 4y + x + 3y$

……

b $3p - 2q + p + q$

……

(2 marks)

11 A rope has length 10 m.

Nadia cuts off pieces of length 4.8 m and 2.73 m so that there are now three pieces.

Work out the difference in length between the longest and the shortest piece of rope that Nadia now has.

……m

(2 marks)

12 Write these numbers in order.

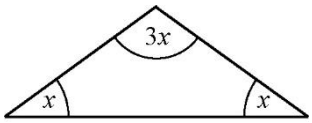
Start with the smallest number.

21.02 20.3 20.19 21.00

……

(1 mark)

13 Here is a triangle with angles $x°$, $x°$ and $3x°$



a Explain why $5x = 180°$

……

……

b Solve $5x = 180°$

x = ……°

c Find the size of the largest angle of the triangle.

……°

(3 marks)

14 a Work out 6.4^3. Write down all the figures on your calculator screen.

……

b Write your answer to part **a** correct to 2 decimal places.

……

(2 marks)

15 Express 10 × 10 × 10 × 10 × 10 as a power of 10

……

(1 mark)

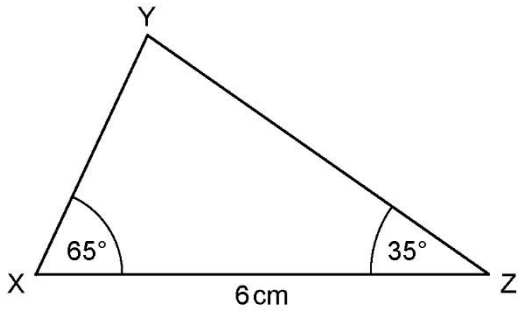
16 My cat eats $\frac{3}{4}$ of a tin of cat food each day.

How many tins of food will my cat eat in 7 days?

……

(2 marks)

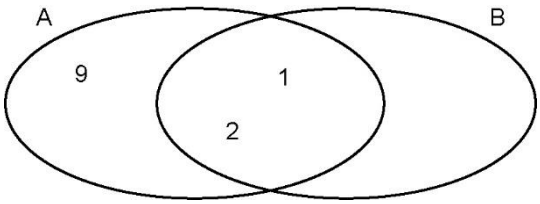
17 Here is a sketch of the triangle XYZ.



Draw an accurate diagram of triangle XYZ.

(3 marks)

18 In the Venn diagram, A is the set of factors of 18 and B is the set of factors for 24

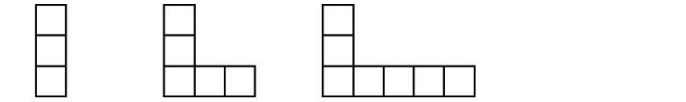


a Complete the Venn diagram to show all the factors of 18 and all the factors of 24

b Find the Highest Common Factor (HCF) of 18 and 24

…… **(3 marks)**

19 Here are the first three patterns in a sequence.



Pattern 1 Pattern 2 Pattern 3 Pattern 4

a Draw pattern 4 in the space provided.

b Work out the number of squares in pattern 5

……

c Work out the number of squares in pattern 9

……

(3 marks)

20 Here are the first four terms of an arithmetic sequence.

3 6 9 12

Here are five algebraic expressions.

$3n$ $n + 3$ $3n + 3$ n^3 $n - 3$

Circle the expression which gives the nth term of the sequence.

(1 mark)

21 Work out 18% of £250

£.....

(1 mark)

22 Here are four numbers.

0.434 41% $\frac{2}{5}$ $\frac{11}{25}$

Put the numbers in order.

Start with the smallest number

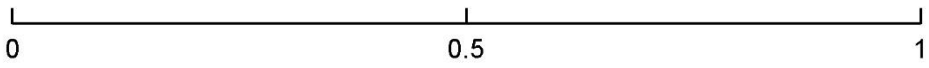
.....

(2 marks)

23 On the probability scale below, mark with a cross the probability that

a when you throw a fair coin you get Heads – label this cross A.

b the sun will rise tomorrow – label this cross B.



(2 marks)