## The Halifax Grammar Schools Admissions Test (Practice): Mathematics

Read the following carefully.
1 The Mathematics Test consists of 40 questions. The time allowed for this test is 30 minutes.

2 This is a multiple-choice test, in which you have to mark your answers to each question on the answer sheet.

3 Each of the questions in the test is followed by a choice of four possible answers: A B C D. Only one answer is right; the others are wrong.

4 For each question, choose the correct answer and make a clear pencil line in the box next to that answer on the answer sheet. An example of this is shown on the answer sheet.

5 If you wish to change an answer, be sure to rub out the mark completely before making another mark.

6 Be sure to keep your place on the answer sheet. Mark your answers in the column that has the same number as the test question.

7 You may not be able to finish all the questions, but try to do as many as you can. If you cannot do a question, do not waste time on it but go on to the next. If you are not sure of an answer, choose the one you think is best.

8 You will not be allowed to use a calculator, but you will need to use rough paper for working out your answers.

9 Please do not put any unnecessary marks on the answer sheet. You may write on the Question Booklet.

10 Complete the test using an HB pencil, a ruler and a rubber.
11 Remember you will have 30 minutes to do the test.

If you are unsure about how to mark your answers, say so now.

## Entrance Test Example Questions

$1 \quad 14562-1251=$
A. 15813
B. 13311
C. 13113
D. 12131
$2 \quad 591+372+85=$
A. 1046
B. 948
C. 1048
D. 848
$3 \quad$ Convert $\frac{3}{20}$ into a percentage
A. $3 \%$
B. $23 \%$
C. $15 \%$
D. $30 \%$
$4 \quad$ Service 521 is a bus from Halifax to Illingworth and back to Halifax. Here is part of its timetable

|  | 521 | 521 | 521 | 521 | 521 | 521 | 521 | 521 | 521 | 521 |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Halifax King Edward Street | 1615 | 1623 | 1631 | 1639 | 1647 | 1656 | 1705 | 1713 | 1721 | 1729 |
| Cousin Lane (Club Lane) | 1626 | 1634 | 1642 | 1650 | 1658 | 1707 | 1716 | 1724 | 1732 | 1740 |
| Illingworth Tewit Lane Top | 1641 | 1649 | 1657 | 1705 | 1713 | 1722 | 1731 | 1738 | 1746 | 1754 |
| Ovenden Way Top | 1648 | 1656 | 1704 | 1712 | 1720 | 1729 | 1738 | 1745 | 1753 | 1801 |
| Halifax King Edward Street | 1700 | 1708 | 1716 | 1724 | 1732 | 1741 | 1750 | 1756 | 1804 | 1812 |

John lives near Tewit Lane Top. He wants to be in Halifax by 1730.
What time should he catch the bus from Tewit Lane Top?
A. 1639
B. 1713
C. 1729
D. 1705

5 The mean of four numbers is 6 . Three of the numbers are 4,5 and 8 . What is the fourth number?
A. 11
B. 7
C. 24
D. $53 / 4$
$6 \quad$ Which decimal number is nearest to 35.3?
A. $\quad 35.29$
B. $\quad 35.4$
C. $\quad 35.303$
D. 35.298
$7 \quad$ Write down the first prime number that comes after 62.
A. 63
B. 65
C. 69
D. 67
$8 \quad$ Which of the lines shown are lines of reflection symmetry for this shape?

A. I, m and o
B. I and n
C. I, m, n and o
D. $m$ and o
$9 \quad$ A number pattern has first term 7 and goes up in 5 s like this:

$$
7,12,17,22, \ldots
$$

What will be the last digit of the $100^{\text {th }}$ term?
A. 0
B. 7
C. 2
D. 5

10 Margery goes into a shop and buys a pencil. She pays with a $£ 1$ coin. In her change she has exactly one of each British coin with a value less than $£ 1$. How much did the pencil cost?
A. $88 p$
B. $32 p$
C. $12 p$
D. $17 p$

11 Two Roman children were working out the difference in their ages. They wrote down this sum.
XIV - IX =

What answer did they get?
A. III
B. V
C. IV
D. VI

12 What number is the arrow pointing to on this scale?

A. 5.3
B. 6.2
C. $\quad 6.5$
D. 5.6

13 Work out $\frac{3}{7}$ of $£ 84$
A. $£ 12$
B. $£ 196$
C. $£ 8.40$
D. $£ 36$


How many vertices has this pyramid
A. 10
B. 6
C. 5
D. 4

15
Carol and Louise share out $£ 20$ between in the ratio 3:2.
How much does Louise get?
A. £15
B. $£ 12$
C. £8
D. $£ 5$

16 Calculate the area and perimeter of this shape:

A. $\quad 8 \mathrm{~m}^{2}$ and
B. $\quad 16 \mathrm{~m}^{2}$ and
C. $\quad 15 m^{2}$ and
D. $\quad \begin{aligned} & 34 m^{2} \\ & 8 \mathrm{~m}\end{aligned}$

17 Here is a sequence with two missing numbers.

$$
5, \ldots, 19,26, \ldots, 40, \ldots
$$

Work out the missing numbers
A. 7 and 33
B. 10 and 36
C. 14 and 30
D. 12 and 33

18 Which of these is not the net of a cuboid?
A.

B.

C.

D.


Calculate the shaded area of this diagram

A. $308 \mathrm{~cm}^{2}$
B. $77 \mathrm{~cm}^{2}$
C. $\quad 154 \mathrm{~cm}^{2}$
D. $36 \mathrm{~cm}^{2}$

20 At a party for 171 people, 9 guests sat at each table. How many tables were there?
A. 162
B. 19
C. 18
D. 180

21 If 5 rulers cost $£ 1.40$, how much would 7 rulers cost?
A. $56 p$
B. $£ 1.96$
C. $28 p$
D. $20 p$

22 Jane and Helen both have an allotment where they grow vegetables. Both allotments are the same size. The diagram below shows how they are divided up.


What extra percentage of land does Jane give to carrots than Helen
A. $25 \%$
B. $10 \%$
C. $65 \%$
D. $90 \%$

23 What is the angle between the hands when the clock reads 11 o'clock?

A. $60^{\circ}$
B. $90^{\circ}$
C. $30^{\circ}$
D. $150^{\circ}$

The diameter of a 5 p coin is 18 mm What is the most number of coins that will fit into a 300 mm ruler (between 0 and 300 only).


The diagram is not drawn to scale.
A. 16
B. 20
C. 17
D. 90

Find the area of the shaded part

A. $165 \mathrm{~cm}^{2}$
B. $\quad 109 \mathrm{~cm}^{2}$
C. $\quad 137 \mathrm{~cm}^{2}$
D. $28 \mathrm{~cm}^{2}$

26 Jamie received £24 pocket money last week.
He spent it as follows:
$10 \%$ on sweets,
$25 \%$ on magazines
$15 \%$ on games
How much did Jamie have left?
A. $£ 12.00$
B. $£ 2.40$
C. $£ 15.00$
D. $£ 6.60$

27 The bells at Kings School ring every 6 minutes. At Queens School the bells ring every 5 minutes. At Princess School the bells ring every 9 minutes. All three bells ring together at 8.30 am . When is the next time the bells of the three schools will ring together?
A. $\quad 1.00 \mathrm{pm}$
B. 9.15 am
C. 10.00 am
D. 11.00am

28 Using $x=5$ and $y=2$, work out

$$
3 x-2 y
$$

A. 4
B. 11
C. 18
D. 9

Arya is putting packs of fruit juice into a large box. The box will hold 5 packs along its length, 5 packs along it's width and 5 layers as shown.
How many boxes of fruit juice will fit in the box altogether?

A. 125
B. 15
C. 13
D. 100

30 Graham has daughters Emma and Rachel. Emma is 3 years older than Rachel. Graham is 57 . This is 12 years older than his daughters' joint ages. How old is Rachel?
A. 39
B. 21
C. 24
D. 42

31 If you double a number and add 1, is the answer:
A. Prime
B. Always even
C. Always odd
D. Even or odd

32 In a shop Jo buys 3 lollipops and 2 chews and pays 70p. Zaq buys 3 lollipops and 5 chews costing 85p. How much does 1 chew cost?
A. $14 p$
B. $17 p$
C. $35 p$
D. $5 p$

33 In France speeds are measured in kilometres per hour (km/h).
In the United Kingdom speeds are measured in miles per hour (mph).
An approximate conversion is $5 \mathrm{mph}=8 \mathrm{~km} / \mathrm{h}$
A car is travelling at $48 \mathrm{~km} / \mathrm{h}$, calculate the speed in mph .
A. 30 mph
B. 6 mph
C. 9.6 mph
D. 240 mph

34 The length of a rectangle is twice its width. If the width is 7 cm , what is the perimeter of the rectangle?
A. 56 cm
B. 28 cm
C. 98 cm
D. 42 cm

35 Work out the missing term of this number pattern

$$
2,2,3,4,6, \_, 14,22, \ldots
$$

A. 8
B. 13
C. 9
D. 10

Find $\frac{3}{4}$ of $\frac{1}{2}$ of 80
A. 60
B. 30
C. 50
D. 40

Here is a menu for the NHGS restaurant.
Each diner chooses 1 starter, 1 main course and 1 dessert.

How many possible meal combinations are there?

## NHGS Restaurant

Set menu of the day

## Starters

Tomato soup
or
Melon

## Main Course

Salmon, new potatoes and peas
or
Vegetable lasagne with salad

## Deserts

Fresh fruit cocktail or
Lemon cheesecake
A. 6
B. 8
C. 10
D. 110

38
The pie chart shows the mixture of trees in a wood.
There are 1,000 trees altogether.
What percentage of the trees are ash?

A. $250 \%$
B. $90 \%$
C. $25 \%$
D. $75 \%$
$39 \quad 13$ friends win a prize of $£ 385$.
They share the prize out equally in whole $£ 1$ s (no pence).
They give the remainder to charity.
How much do they give to charity?
A. $£ 8$
B. $£ 29$
C. $£ 30$
D. $£ 5$

Stefan travels from his home to London by coach, a distance of 160 miles.

How far from home is Stefan when the bus makes the $2^{\text {nd }}$ stop?

A. 40 miles
B. 8 miles
C. 10 miles
D. 110 miles

Answers

| Question | Letter | Answer |
| :---: | :---: | :---: |
| 1 | B | 13311 |
| 2 | C | 1048 |
| 3 | C | 15\% |
| 4 | D | 1705 |
| 5 | B | 7 |
| 6 | D | 35.298 |
| 7 | D | 67 |
| 8 | B | 1 and n |
| 9 | C | 2 |
| 10 | C | 12p |
| 11 | B | V |
| 12 | C | 6.5 |
| 13 | D | £36 |
| 14 | B | 6 |
| 15 | C | £8 |
| 16 | C | $15 \mathrm{~m}^{2}$ and 16m |
| 17 | D | 12 and 33 |
| 18 | B | See diagram on question |
| 19 | C | $154 \mathrm{~cm}^{2}$ |
| 20 | B | 19 |
| 21 | B | £1.96 |
| 22 | A | 25\% |
| 23 | C | $30^{\circ}$ |
| 24 | A | 16 |
| 25 | C | $137 \mathrm{~cm}^{2}$ |
| 26 | A | £12.00 |
| 27 | C | 10.00am |
| 28 | B | 11 |
| 29 | A | 125 |
| 30 | B | 21 |
| 31 | C | Always odd |
| 32 | D | 5 p |
| 33 | A | 30 mph |
| 34 | D | 42 cm |
| 35 | C | 9 |
| 36 | B | 30 |
| 37 | B | 8 |
| 38 | C | 25\% |
| 39 | A | £8 |
| 40 | D | 110 |

