ALDERLEY EDGE
SCHOOL FOR GIRLS

11+ ENTRANCE EXAM

SAMPLE
MATHS PAPER

Time allowed: 1 hour

Calculators are *not* allowed.

Write your candidate number in the box above.

There are **two parts** to this paper.

The first section is made up of multiple choice questions. For each question use pencil to put a circle around the correct answer. If you make a mistake, rub it out and circle the correct answer. You should spend no more than 25 minutes on this section.

As soon as you have finished this section, or after 25 minutes, you should move on to the second section.

The second section contains questions where you may need to show your methods and your working out. The last question is a puzzle-type question. If you finish this section you may go back to the earlier section if you need to.

Do not write in this area.

Results:

Section A	/ 25
Section B	/ 50

Section A

You may use rough paper for working out but this will not be marked. Only the answers you circle will be marked.

For each question, circle the correct answer in pencil.

1. Which of these numbers is ***not*** a prime number?

A 2 B 5 C 7 D 9

2. In the number 2·369 what does the 6 mean?

A 6 B $\frac{6}{1000}$ C $\frac{6}{10}$ D $\frac{6}{100}$

3. What is 25% of £84?

A £59 B £21 C £109 D £42

4. What is the sum of the first four odd numbers?

A 4 B 10 C 16 D 20

5. How many factors do 8, 12 and 20 have in common?

A 1 B 2 C 3 D 4

6. If a = 5 what is 2a?

A 10 B 52 C 7 D 25

7. If x + 12 = 17, what is x?

A 29 B 5 C 17 D none of these

8.

When t = 4, which answer is the odd one out?

A 2t B t + 2 C 32 ÷ t D t + 4

9.

I think of a number, double it and add 3. My answer is 15. What was my number?

A 6 B 12 C 33 D 18

10.

What is another way of writing $a + a + a + a$?

A a^4 B $4a$ C $a4$ D $aaaa$

11.

An angle of 270° is called:

A obtuse B reflex C acute D a straight-angle

12.

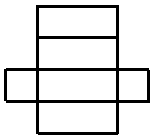
Does a rectangle have rotational symmetry?

A not enough information B sometimes

C never D always

13.

Here is a net of a 3-D shape.



What 3-D shape can be made by folding up this net?

A a triangular prism B a pyramid

C a cuboid D a cube

14.

A rectangle has an area of 20 cm^2. Its longer sides each measure 5cm. What is its perimeter?

A 9cm B 18cm C 20cm D 25cm

15.

A triangle has angles of 80° and 20°. The third angle is:

A 20° B 100° C 80° D 180°

16.

Four girls have an average height of 1·4m. A boy, also of height 1·4m, joins them. The average height of all five will:

A increase B stay the same

C decrease D can't say

17.

What is the ***mode*** of these numbers? 1 1 1 2 3 4 6

A 2 B 5 C 1 D 18

18.

If a fair dice is rolled 30 times, how many times would you expect to get a "2"?

A 15 B 6 C 5 D 2

19.

One inch is about 2·5 cm. There are 12 inches in 1 foot. How many cm are there in two feet?

A 12 cm B 14·5 cm C 24 cm D 60 cm

20.

Sam chooses a letter at random from the word **ATTITUDE.** Which word or phrase best describes his chances of choosing the letter **T**?

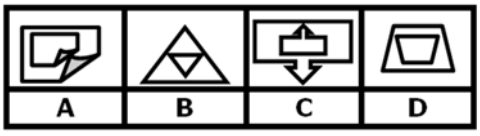
A likely B uncertain C unlikely D even chance

21.

Here are four shapes in a row. They all have something in common except one.

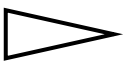
Which is the odd one out?

Circle the letter.



22.

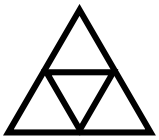
 is to as  is to:

A  B  C  D 

23.

How many triangles are in this diagram?

(Remember that the triangles may be of different sizes!)



A 5 B 6 C 1 D 4

24.

If $a = 4$ and $b = 2$, what is $\frac{a+b+3}{3}$?

A 3 B 423 C 2 D 15

25.

Will's calculator is broken. The + and the – buttons are the wrong way round.

What will he get if he types in 7 – 4 + 1?

A 12 B 10 C 4 D 2

Section B

Answer these questions in the spaces provided. Show any working out needed.

Number calculations

1. Put these numbers in order of size starting with the smallest

72.1 72.101 702.1 72.01 72.11

(1)

2. Write in figures the number “ninety four thousand and twelve”

(1)

3. Add together 876 and 729

(1)

4. Subtract 192 from 264

(1)

5. Work out 69 x 9

(1)

6. Divide 153 by 3

(1)

7. Find 20 % of £620

(2)

8. Three of these fractions are equivalent. One is ***not*** equivalent to the others.
Circle the one that is ***not*** equivalent.

$^{6}/_{8}$ $^{10}/_{12}$ $^{9}/_{12}$ $^{3}/_{4}$

(1)

9. What is 16800 ÷ 200 ?

(1)

10. Work out 29.16 + 0.05

(1)

Application of number

11. a) Write in the missing numbers.

50% of 80 = ...

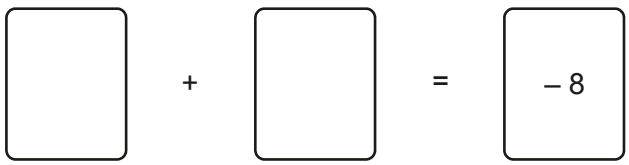
5% of 80 = ...

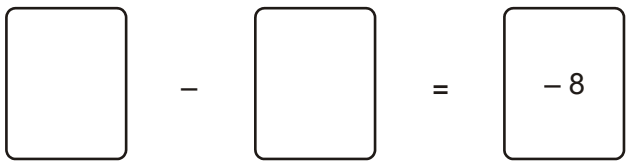
1% of 80 = ...

b) Use part (a) to help you work out 56% of 80

(3)

12. Write a number in each box to make the calculations correct.





(2)

13. Complete this number sentence:

½ of 20 is ¼ of ☐

(1)

14. Find two numbers that have a difference of 3 and multiply together to get 88.

(1)

15. Two of the digits in this subtraction are missing. Put the missing digits into the boxes.

$$\begin{array}{rrrr} & \square & 3 & 5 \\ - & & 7 & \square \\ \hline & 3 & 5 & 9 \\ \hline \end{array}$$

(2)

Algebra & Reasoning

16. Look at the information.

$x = 4$	$y = 13$

Here is one way of changing x to get y:

To get y, you could: **multiply x by** **2** **and add** **5**

This can be written as a rule: **Rule:** $y = 2x + 5$

Fill in the empty boxes to show two more ways of changing x to get y. In each case, fill in the rule too.

To get y, **multiply x by** **3** **and add** ☐

Rule: $y =$ ☐

To get y, **multiply x by** ☐ **and subtract** **3**

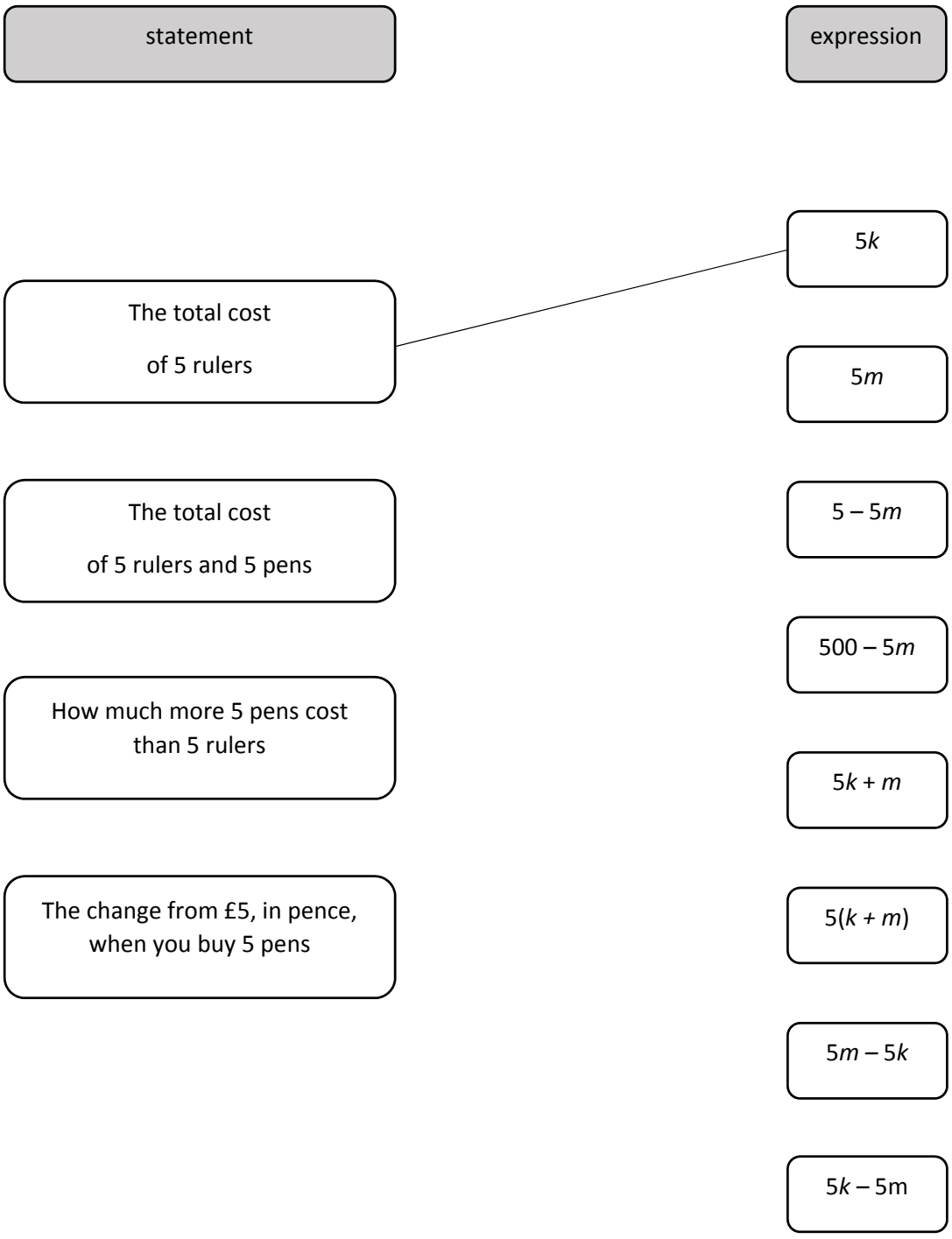
Rule: $y =$ ☐

(4)

17. A ruler costs k pence. A pen costs m pence.

Match each statement with the correct expression for the amount in pence.

The first one is done for you.



(3)

18. For each of the tables, fill in the empty boxes using the words “ODD” or “EVEN.

Some have been done for you.

ADDING

+	ODD	EVEN
ODD	EVEN	
EVEN		

(2)

MULTIPLYING

×	ODD	EVEN
ODD		
EVEN		EVEN

(2)

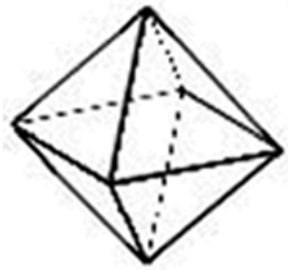
19. Fill in all three empty boxes for this multiplication table.

×		5
3	24	15
	16	

(3)

Geometry & shape

20. Here is a picture of an *octahedron*.



Write down the number of:

a) Faces ……

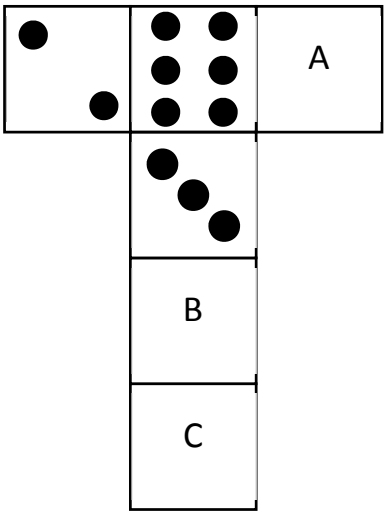
b) Edges ……

c) Vertices ……

(3)

21. Olivia is making dice. The diagram below shows the net of one of them.
When the net is folded up to make the dice, the number of dots on opposite faces must always add up to seven.

Write down the number of dots that should be on the faces marked A, B and C.



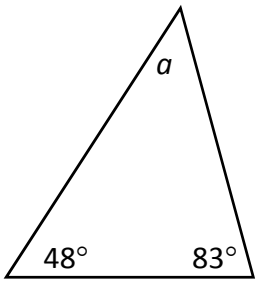
A =

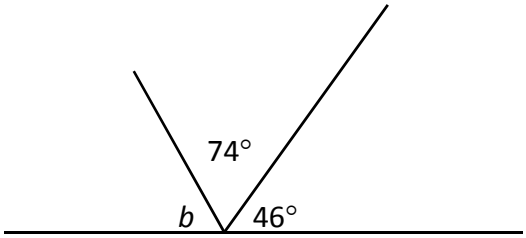
B =

C =

(3)

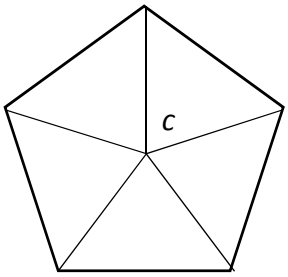
22. Calculate the missing angles labelled a, b and c:





a =

b =



(a regular pentagon)

c =

(3)

Data & Probability

23. Some boys and girls were asked to choose their favourite sport from Hockey, Football and Tennis.

Some of their results were put into a table.

Use the information given to correctly complete this two-way table.

	Hockey	Football	Tennis	Total
Girls	16		19	40
Boys	21		6	
Total		18		

(4)

Please turn over for the last question.

Puzzle Question

24. Peter has three times as many sisters as brothers. His sister Louise has twice as many sisters as brothers. How many children are there in the family? You may gain marks for showing how you worked it out.

(3)