FOREST
SCHOOL

11+

ENTRANCE AND SCHOLARSHIP SAMPLE PAPERS

Sample Paper

FOREST SCHOOL
ENTRANCE EXAMINATION
MATHEMATICS

Calculators are **NOT** allowed
You are advised to show your working
Time: One hour

NAME…………………………………………………………………………………

CANDIDATE NUMBER…………………………………

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1   Work out   694 + 888

ANSWER………………………………

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2   Work out   1234 - 566

ANSWER………………………………

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3   Work out   764 x 7

ANSWER………………………………

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4   Work out   20504 ÷ 8

ANSWER………………………………

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5   In 1970 £1 was worth the same as $2.50.
How many pounds was $1000 worth?

ANSWER………………………………

6   Calculators normally cost £6 and protractors normally cost 30p.

In a sale, calculators have been reduced by a quarter and protractors are half price.

David bought 8 calculators and 20 protractors.

How much did he have to pay?

ANSWER……………………………….

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7   Jordan eats $\frac{1}{4}$ of a pizza and Anna eats $\frac{1}{3}$ of **what is left.**

Rohit, Guhesh and Matilda share equally the remainder.

What fraction of the pizza did Matilda eat?

ANSWER……………………………

8 Mayank thinks of a number. He doubles it and then adds 4 and gets the answer 40.

What was Mayank's number?

ANSWER...........……………

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9 Write in words the number 4040440

ANSWER..

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10   What number is halfway between -3 and 8?

ANSWER…………………………………..

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11   A programme starts at 9:15pm and ends at 11:06pm.
How many minutes did it last?

ANSWER…………….............................minutes

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12   Grace plants a row of daffodils.

There is a gap of 1.1 metres between each daffodil, and the row begins and
ends with a daffodil.

She has 8 daffodils.

How long is the row of daffodils when she has finished?

ANSWER………………………………..m

13 0.126 is halfway between two numbers.

One of the numbers is 0.11.

What is the other number?

ANSWER..

14 Khatijah throws two dice and adds together the scores.

How many different ways can she score 8?

Show each different way clearly.

ANSWER…………………………………

15 Hiring a Sports Hall costs a £30 booking fee and then £10 per hour.

Chris hires it and pays £120.

How many hours did Chris hire the hall for?

ANSWER…………………………………

16 Jerry the bearded dragon eats 12 locusts for breakfast at the start of every day.

His owner buys 100 locusts one afternoon for Jerry to eat.

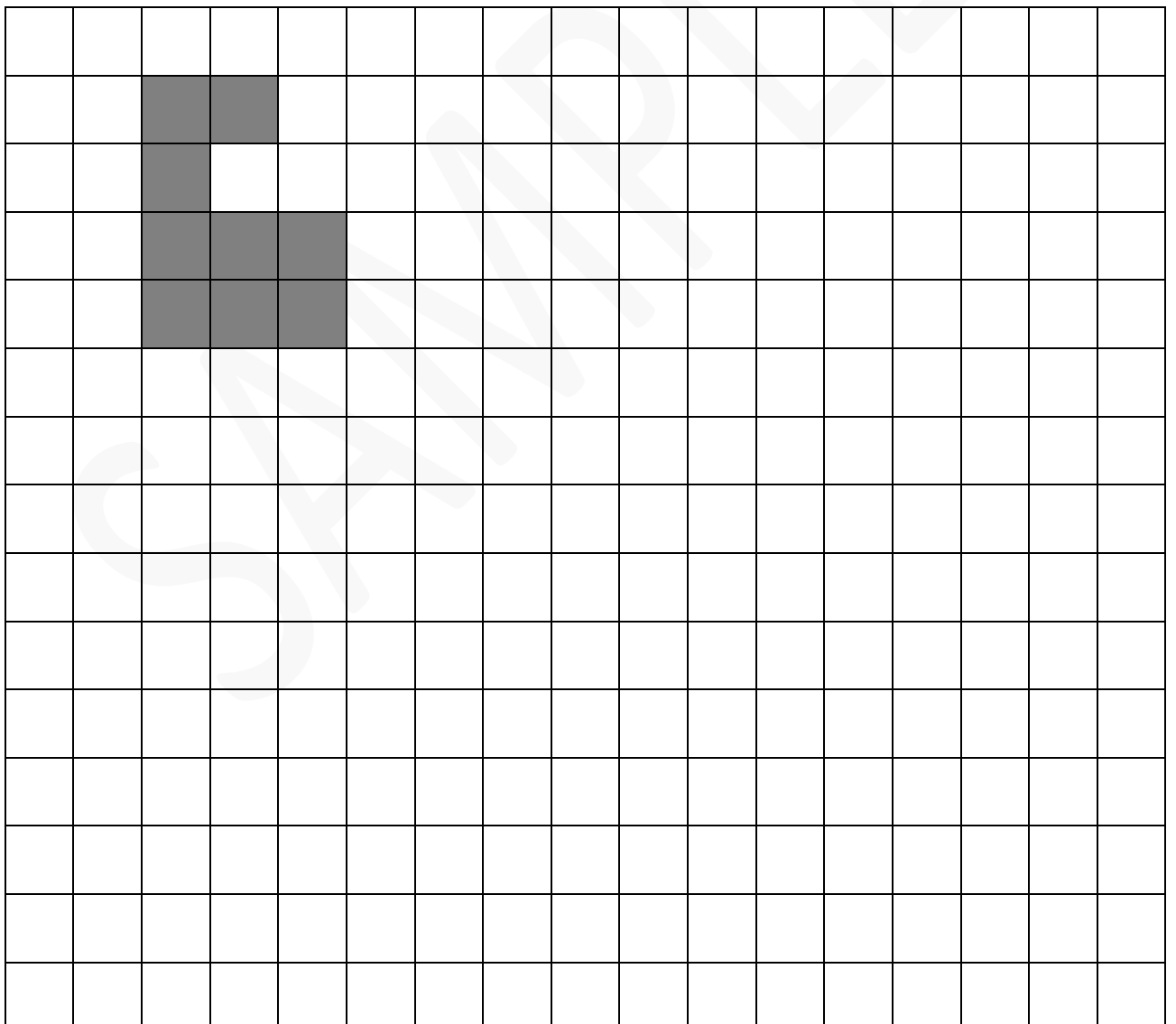How many locusts does Jerry get on the day these locusts run out?

ANSWER…………………………………………

17   What is the smallest number that 3, 4, and 10 all go into?

ANSWER…………….……………………………

18   Draw the shape whose sides are twice as big as the one shown in the space
in the grid below it.

19 Prasha is swimming lengths at her local swimming pool.

She takes 24 seconds to swim a length doing front crawl.

She takes 60 seconds to swim a length doing breaststroke.

She swims 3 lengths of each (so a total of 6 lengths).

The last length takes an extra 6 seconds as she gets tired.

How long did she take to swim all 6 lengths? Give your answer in minutes and seconds.

ANSWER………………mins…………………secs

20 Ermintrude the female cat flea can lay 50 eggs a day.

These become adults in 30 days.

How many new adult fleas will there be in 40 days?

ANSWER…………………………………

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21 Complete the table showing whether pupils walk to school or not and answer the questions below.

	Walk	**Don't walk**	**Total**
Girls	6		11
Boys		8	
Total			23

(i) What fraction of the pupils are boys who walk to school?………………………..

(ii) What fraction of the girls don't walk to school?..

_____

22 36 is a square number because it can be written 6 x 6.

Similarly, 64 = 8 x 8 is a square number.

1000 is a cube number because it can be written 10 x 10 x 10

Similarly, 343 = 7 x 7 x 7 is a cube number.

The French mathematician Pierre de Fermat claimed correctly that there is only one square number that is 2 less than a cube number.

It is less than 50.

What is it?

ANSWER……………………………….

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23 A game is played on a board with spaces numbered 1, 2, 3, 4, 5, 6, 7….. and so on.

In the game players throw a dice numbered 1 to 6 and move forward the number of spaces indicated unless they throw a 6.

If they throw a 6 they do not move but have to go back the number on the **next** throw.

What space would you end up on after these 8 throws: 5, 5, 3, 6, 2, 6, 1, 4?

ANSWER………………………

24 On the planet Zog the wibbles and the wobbles are having their annual conference.
A wibble has 6 arms and a wobble has 5 arms.
There are 11 wibbles and a total of 81 arms at the conference.
How many wobbles are there?

ANSWER………………………………

25 In this addition each letter represents a different digit.
List all the possible digits that A could be.

NA + RA + TA = WXA

ANSWER………………………………..

In this multiplication each letter represents a different digit.
List all the possible digits that B could **NOT** be.

MB x NB = GHB

ANSWER……………………………….

26 A number is a multiple of 11 if 11 goes into it. 33 and 121 are both multiples of 11.

Ajay says that a number is a multiple of 11 if the difference of alternate sums of digits in the number is a multiple of 11.

So, 27390628 is a multiple of 11 because

2 + 3 + 0 + 2 = 8

7 + 9 + 6 + 8 = 30

and 30 – 8 = 22 which is a multiple of 11.

(a) Is 978261 a multiple of 11? Show your working clearly.

ANSWER……………………………….

(b) Find one of the ways to fill in the gaps so that this number is a multiple of 11.

7 _ 5 6 _ 0

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27 What is 6 metres per second in kilometres per hour?

ANSWER..km/h

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28   Safiya draws a rectangle.

She then adds 10cm to each side.

What has the perimeter increased by?
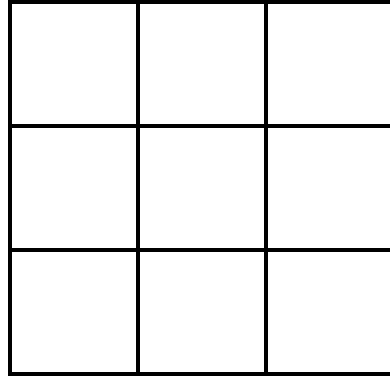
ANSWER………………………………….....cm

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29   Kasey takes 24 minutes to cycle from A to B

Shayban cycles at three quarters of Kasey's speed.

How long does it take Shayban to cycle from A to B?

ANSWER …………………………..

30   How many ways are there of colouring in three squares in this grid so that exactly one coloured square appears in each row and each column? Show clearly how you get your answer.

ANSWER………………………………………….

31 A number is **deficient** if its factors, not including itself, add up to a number less than the original number.

If they add up to more, it is **abundant**.

So 8 is deficient because its factors add up to 1 + 2 + 4 = 7 which is less than 8.

Are the following numbers deficient or abundant?
Explain clearly your reasoning.

(a) 10

ANSWER……………………………..BECAUSE……………………………

………………………………………………………………………………………

………………………………………………………………………………………

(b) 12

ANSWER……………………………..BECAUSE……………………………
………………………………………………………………………………………

………………………………………………………………………………………

Victor says that all prime numbers are deficient. Do you agree?
Explain your reasoning carefully

ANSWER……………………………..BECAUSE……………………………

………………………………………………………………………………………

………………………………………………………………………………………

32   Katie, Molly and Olivia are three friends.

One of them always tells the truth.
One of them always lies.
The other one sometimes tells the truth and sometimes lies.

Katie says: **I always lie.**

Olivia says: **Katie sometimes lies and sometimes tells the truth.**

Use this information to determine which person is which.

Always tells the truth.………………….………………………

Always lies.……………………….………………………

Sometimes tells the truth and sometimes lies……………………………………….......

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33   Alan and Bob can paint a room in 4 hours.
Bob would take 6 hours on his own.
How long would Alan take on his own?

ANSWER...

34 Reflect these shapes in the mirror lines.

mirror

mirror
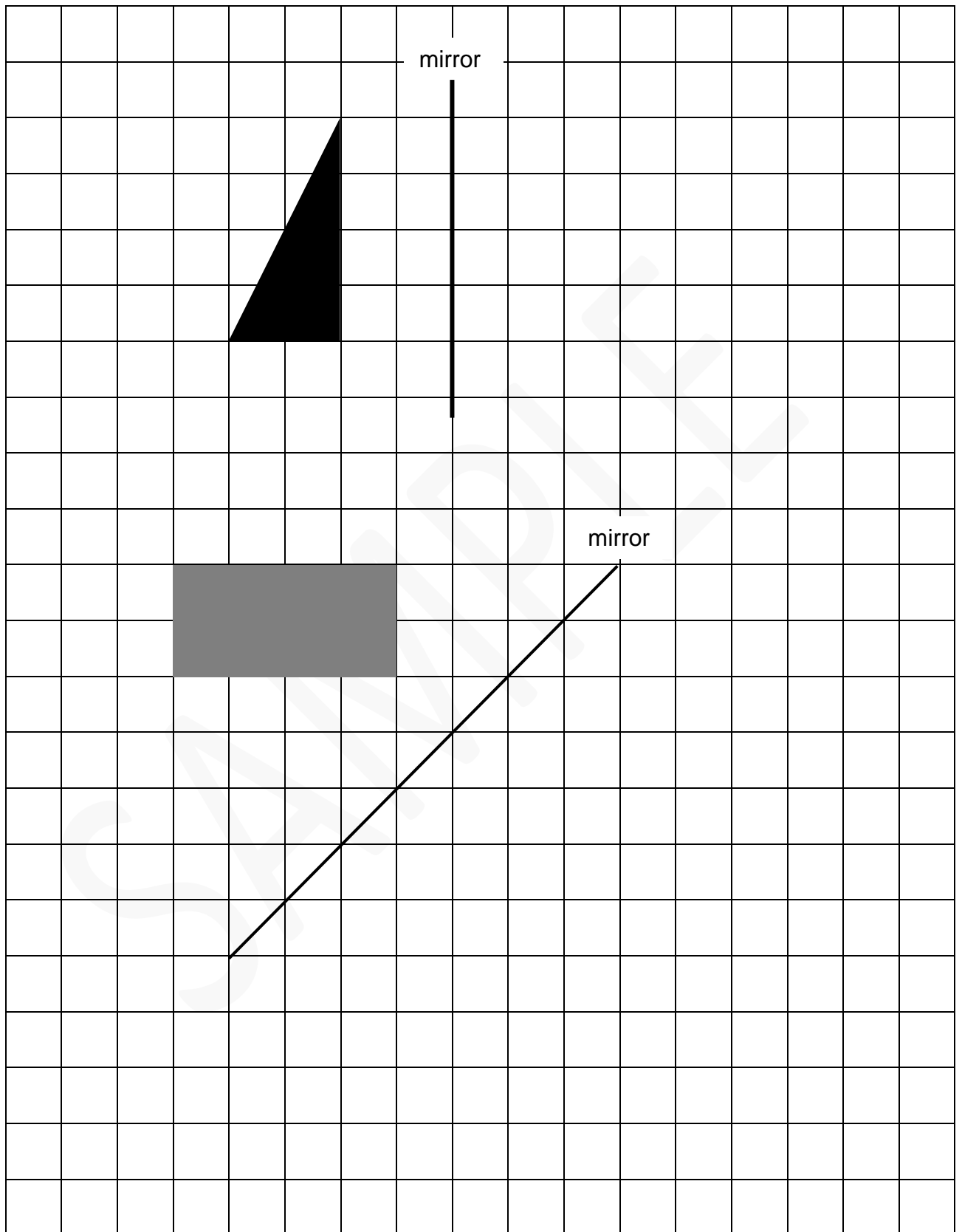
35   A cube has six faces.

Theo builds a bigger cube out of 27 little cubes.

He paints the outside of the big cube and lets the paint dry.

He then breaks it up into the original 27 cubes.

What is the total number of **unpainted** faces on the little cubes? Show clearly how you get your answer.

ANSWER…………………………………

YOU HAVE NOW COMPLETED THE EXAMINATION.

IF YOU HAVE TIME GO BACK AND CHECK YOUR ANSWERS.

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