HIGHGATE

Mathematics
11+ Sample Paper A

Read each question carefully before attempting to answer it. Remember to show all your working clearly.

Write your answers in the boxes given.

If you cannot answer part of a question, move onto the next part. However, you must NOT turn to the next page until you are told to do so.

If you have finished a question spend any spare time checking your answers on that page: you will not be allowed to go back to that question later.

Do not worry if you find part of a question difficult: miss it out and try the next one.

The exam will last for approximately 45 minutes.

Question 1

Remember to include your working to show us how you find your answers.

The following questions are about a butcher's shop.

a) Karim buys 7 burgers and 5 steaks.
Burgers cost 61p each and steaks cost 84p each.

How much did Karim spend in total?

7 x 61p = 427p
5 x 84p = 420p
Total = 427 + 420 = 847

Karim spends £ 8.47

b) Sausages come in packs of 8. Each pack costs £1.30

James spends £9.10 on sausages. How many sausages did James get?

9.10 ÷ 1.30 = 7
7 x 8 = 56

James gets 56 sausages.

c) Tyler buys 16 chicken wings, and receives £14.72 change from a £20 note.

What is the price of a chicken wing?

20.00 - 14.72 = 5.28
528 ÷ 16 = 33

One chicken wing costs 33 pence

d) The butcher also sells slices of turkey.

Donald buys three quarters of the slices in the shop. Alisha then buys a sixth of the remaining slices.

Alisha bought 3 slices. How many slices did Donald buy?

3 slices = 1/6th of remaining slices
3 x 6 = 18 slices remaining when Alisha entered shop
18 slices = 1/4 of total number of slices
18 x 3 = 54

Donald bought | 54 | slices

e) Lamb chops are three times more expensive than pork chops.

Tina buys a lamb chop and a pork chop. She spends £4.80 in total.

How much do lamb chops and pork chops cost?

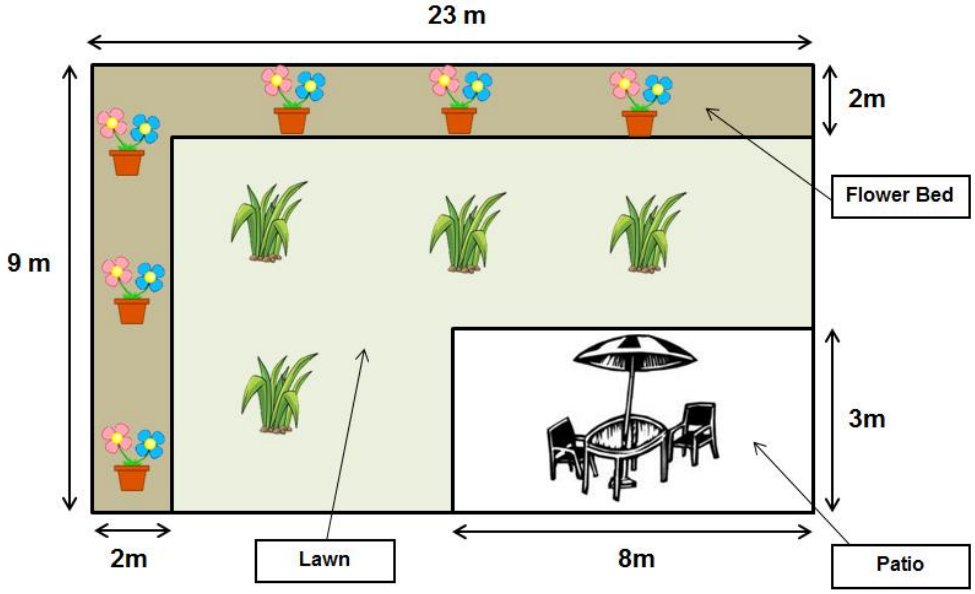
1 lamb chop costs same as 3 pork chops
1 lamb chop + 1 pork chop costs same as 4 pork chops
4.80 ÷ 4 = 1.20
1.20 x 3 = 3.60

A lamb chop costs | £ 3.60 | , a pork chop costs | £ 1.20 |

Question 2

Remember to include your working to show us how you find your answers.

Mr Green's garden is a mixture of lawn, patio and flower beds. A plan of the garden is shown below, with some (but not all) of the measurements.
The picture is <u>not drawn to scale</u>.



a) What is the area covered by Mr Green's lawn?

Dimensions of lawn (inc. patio) = 21m x 7m
Area of lawn = 21 x 7 - 8 x 3
= 147 - 24
= 123

The area of the lawn is 123 m^2

b) Mr Green buys 6 flower pots. Flower pots cost £4.00 each.
Mr Green has a voucher for "*15% off*".
How much does Mr Green spend on flower pots if he uses the voucher?

Total cost = 4 x 6 = £24
10% of 24 = 2.40
5% of 24 = 1.20
15% of 24 = 3.60
24 - 3.60 = £20.40

Mr Green spends £20.40

c) Mr Green wants to lay paving stones on his patio.
The stones are rectangles measuring 50 cm x 20 cm.

How many paving stones are needed to pave the patio?

800 ÷ 50 = 16
300 ÷ 20 = 15
Total number of tiles = 15 x 16
= 240

The number of paving stones needed is 240

d) The area of the flower bed is 60m^2.

One sack of fertilizer is needed for every 4m^2 of flower bed.

Sacks cost £10 each, but are on offer:
"*buy four sacks and get a fifth sack free*".

How much does it cost to fertilize the flower bed?

60 ÷ 4 = 15 sacks
You pay for 12 sacks, and get 3 free
12 x 10 = £120

The total cost is £120

Question 3

a) Tim is going paintballing. Entry into paintballing costs £23, but then you also have to pay £6 per 100 paintballs that you use.

Tim spent £65 in total. How many paintballs did he use?

65 - 23 = 42
42 ÷ 6 = 7
7 x 100 = 700

Tim uses [700] paintballs

b) Janice is running a bath. She mixes hot water with cold water to make sure the temperature is just right.

She uses 5 times more hot water than cold water. Janice's bath holds 90 litres of water in total. How much hot water does she use?

There's 1 litre cold for every 5 litres hot
90 ÷ 6 = 15
So there's 15 litres cold

Janice uses [75 litres] of hot water

c) Bob the Builder is filling a hole with a mixture of gravel and sand.

234kg of sand are needed to make 400kg of the mixture.

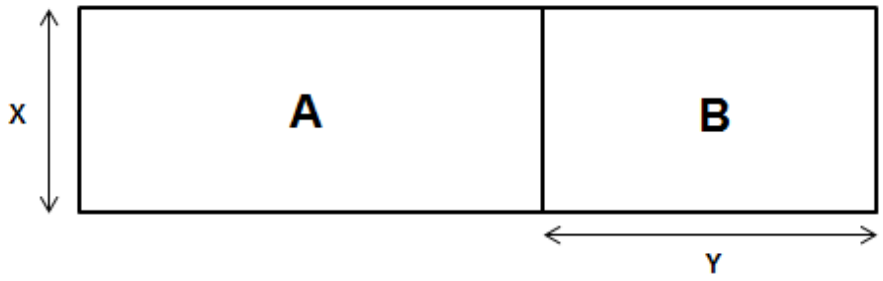
Bob makes 1000kg of the mixture.

How much **gravel** does Bob need?

400 - 234 = 166 kg gravel needed for 400kg of mix
83 kg of gravel needed for 200kg of mix
83 x 5 = 415kg gravel needed for 1000kg of mix

[415 kg]

d) In the picture below, rectangle A has an area of 70cm^2, and rectangle B has an area of 63cm^2. The side lengths of the rectangles are whole numbers. The sides labelled X and Y are both longer than 1cm.



Find the lengths of the sides labelled X and Y.

Possible dimensions of A are: 1 x 70, 2 x 35, 5 x 14, 7 x 10
Possible dimensions of B are: 1 x 63, 3 x 21, 7 x 9
The only possible value for x is 7cm
So y is 9 cm

X is 7cm, and Y is 9cm

e) Victoria the vet is weighing her pets.
Her rabbit and her cat together weigh 10kg.
Her cat and her dog together weigh 24kg.
Her dog and her rabbit together weigh 20kg.

How much do all 3 of her pets weigh when weighed together?

Adding them all together:
2 rabbits + 2 dogs + 2 cats = 10 + 24 + 20 = 54kg
1rabbit + 1 dog +1 cat = 27kg

Together all 3 pets weigh 27 kg

Question 4

Remember to include your working to show us how you find your answers.

a) In the town of Mathsville there are 360 residents.
45% of the residents are children, the rest are adults.
How many adults are there in Mathsville?

55% are adults
10% of 360 = 36
5% of 360 = 18
50% of 360 = 180
55% of 360 = 198

198 adults

b) Numbertown Primary School has 280 pupils. 56 of these pupils are girls.

What percentage of the pupils are boys?

10% of 280 = 28
20% of 280 = 56
So 20% are girls
So 80% are boys

80%

c) The price of a bus ticket from Mathsville to Numbertown has **increased** by 50% in the past year. A bus ticket now costs £1.80

What did it cost a year ago?

150% = £1.80
50% = 60p
100% = £1.20

A bus ticket cost £1.20 a year ago

d) Mathsville Maths Supplies is a shop selling maths equipment.

Tina bought 4 calculators and 3 protractors for £16.10
Ahmed bought 2 calculators and 1 protractor for £7.50

How much does a calculator cost, and how much does a protractor cost?

4 calculators and 2 protractors costs £7.50 x 2 = £15.00
So 1 protractor costs £16.10 - £15.00 = £1.10
2 calculators costs £7.50 – £1.10 = £6.40
1 calculator costs 6.40 ÷ 2 = £3.20

A calculator costs £ 3.20 , a protractor costs £ 1.10

e) Football is very popular in Numbertown.

Two fifths of the population support London Mathletic.
The rest support either Mathsville United or the Counting Crows.
Twice as many people support Mathsville United than support the Counting Crows.
500 people support the Counting Crows.

What is the total population of Numbertown?

500 x 2 = 1000 people support Counting Crows
1000+500 = 1500 which is three fifths of population
1500 ÷ 3 = 500 which is one fifth
500 x 5 = 2500 people in total

The population of Numbertown is 2500

End of test