

Highgate School



Entrance examination for entry into Year 9 (13+)

Practice Paper

Mathematics

You should read each question very carefully before attempting to answer it. Remember to show clearly all your working.

You should write your answers in the boxes given.

If you cannot answer part of a question, you should 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 you should spend any spare time checking your answers on that page: you will not be allowed to go back to that question later.

The exam will last for 1 hour. You will be given 12 minutes to complete each question.

Question 1

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

Marco goes to the supermarket to buy groceries.

- a) A bag of onions contains 8 onions and costs 94p.

How much do 56 onions cost?

56 onions cost

- b) A 200g bag of potatoes costs £1.15.
A 250g bag of potatoes costs £1.40.

Marco wants to buy 1kg of potatoes.

What is the cheapest way for him to do this, and how much will he spend?

The cheapest way for him to do this is:

He will spend

£

- c) Peppers cost 73p each.
Today peppers are on offer.

SPECIAL OFFER
Buy two peppers and get a third pepper for free!

How much do 12 peppers cost today?

12 peppers cost £

- d) Tomatoes cost 27p each. Cucumbers cost 55p each.

Marco spends £6.80 in total on tomatoes and cucumbers.
He buys three times as many tomatoes as cucumbers

How many tomatoes does he buy, and how many cucumbers does he buy?

He buys tomatoes and he buys cucumbers

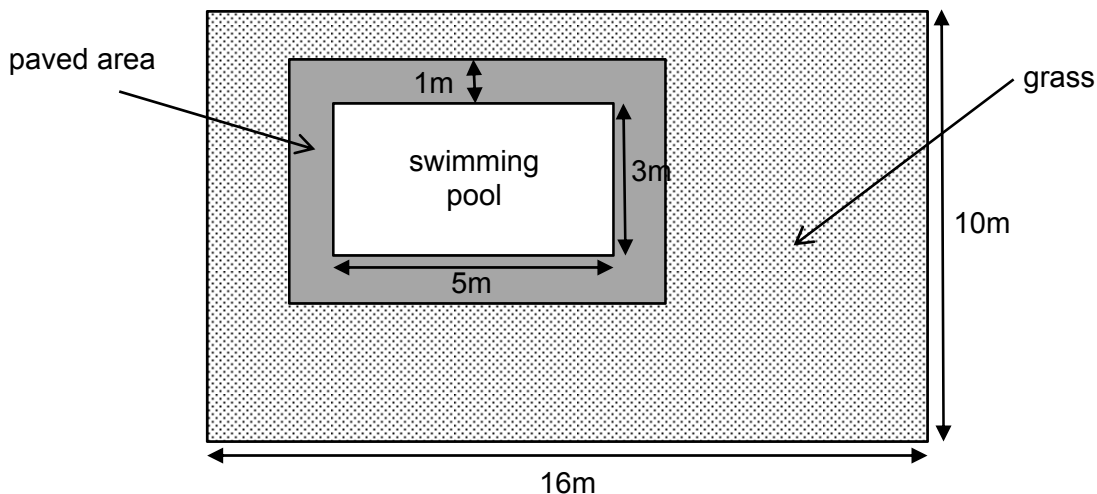
**WAIT: do NOT type your answers until you are told to do so.
If you have time, check your answers on this page.**

Question 2

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

Amber has built a swimming pool in her garden.

She wants to buy paving stones to make a path around the swimming pool.
She also wants to plant grass to cover the rest of the garden.



The path around the swimming pool is 1m wide.
Each paving stone is a square of side length 1m.

- a) How many paving stones does Amber need to buy?

Amber needs to buy paving stones

Each paving stone costs £7.45.

b) How much will the paving stones cost in total?

The paving stones cost £ in total

1 packet of grass seed costs 32p and covers an area of 2.5m^2 with seeds.

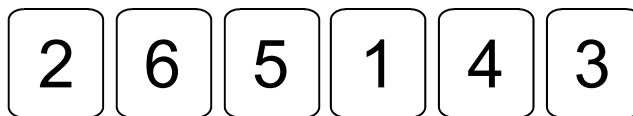
c) How much does Amber need to spend on grass seed for her garden?

Amber needs to spend £ on grass seed

**WAIT: do NOT type your answers until you are told to do so.
If you have time, check your answers on this page.**

Question 3

Kathryn and Louis play a game involving six cards, numbered from 1 to 6. The cards are dealt out in a line so that they look like this:



The players take it in turns to pick up a card from either end of the line. At the end of the game the players add up the numbers on their chosen cards, and the winner is the player with the larger total.

In the first game, Kathryn goes first. She can either pick up the 2 or the 3, and decides to take the 3:

Kathryn's cards



Cards not yet picked up



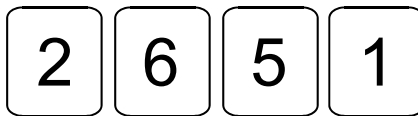
Louis's cards

Louis can now choose between the 2 and the 4. He decides to pick up the 4.

Kathryn's cards



Cards not yet picked up

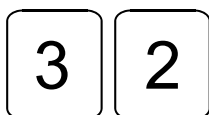


Louis's cards



Next, Kathryn can choose between the 2 and the 1. She picks up the 2.

Kathryn's cards



Cards not yet picked up

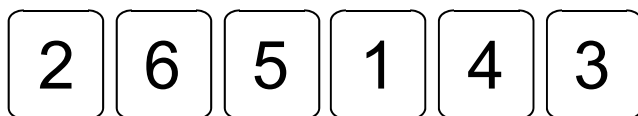


Louis's cards



a) Explain how Louis can win this game.

In their second game, the cards are dealt out in the same order:



Kathryn goes first again, and this time decides to pick up the 2.

- b) Explain how Kathryn can win this game, regardless of what Louis decides to do.

You should put your working and your explanation in the box below.

**WAIT: do NOT type your answer until you are told to do so.
If you have time, check your answers on this page.**

Question 4

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

Neil is buying ingredients to make some apple pies.

- a) To make 4 apple pies you need 300g of sugar.
Neil wants to make 10 apple pies.

How much sugar does Neil need to make 10 apple pies?

Neil needs grams of sugar

- b) Neil buys 1250g flour for £3.25
How much does 1kg of flour cost?

1kg of flour costs

- c) Neil needs some green apples and some red apples.
20% of the apples he buys are green, and the rest are red.

Neil buys 52 red apples. How many apples does he buy in total?

He buys apples in total

Neil also needs to buy some eggs and some butter.

- d) A box of eggs and a pack of butter cost £1.33
A box of eggs costs 37p more than a pack of butter.
What is the cost of a pack of butter?

A pack of butter costs pence

**WAIT: do NOT type your answers until you are told to do so.
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Question 5

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

This question is about train times.

- a) A train journey takes 2 hours and 20 minutes.
The train is travelling at its top speed for three quarters of the journey time.
For how long is the train travelling at its top speed?

The train is travelling at its top speed for hour and minutes

- b) In the 1950s, The Caledonian was an express train running between London and Glasgow. The journey time was 7 hours.

Today, the same journey is made, but the journey time has been reduced by 35%. How long does it take today to travel from London to Glasgow?

Today it takes hours and minutes

- c) An express train travels between London and Manchester.
The train stops in both London and Manchester for 20 minutes before setting off in the opposite direction.

The train sets off from London at 5:45am and travels to Manchester and back three times in one day. At the end of the day the train arrives in London at 11:25pm.

How long is the train journey from London to Manchester?

The train journey takes hours and minutes

**WAIT: do NOT type your answers until you are told to do so.
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End of test

