




COUNTDOWN TO YOUR FINAL MATHS EXAM ... PART 1 (2017)

	Marks	Actual	  
Q1. Two Way Tables	4		
Q2. Two Way Tables	4		
Q3. Prime Numbers	3		
Q4. Ratio/Fractions	5		
Q5. Scatter Graphs	6		
Q6. Scatter Graphs	5		
Q7. Multiples	2		
Q8. Square numbers	3		
Q9. Frequency Trees	5		
Q10. Even/Odd/Prime	3		
Q11. Multiples in context	3		
Q12. Multiples in context	5		
Q13. Multiples in context	4		
Q14. Prime numbers	3		
Q15. Product of prime factors	3		
Q16. HCF/LCM	2		
Q17. Factors	2		
Q18. Factors & multiples	3		
Q19. Converting standard form / size order	3		
Q20. Converting standard form	2		
Q21. Multiplying standard form	2		
Q22. Standard form in context	3		
Q23. Standard form in context	3		

Q1. People can buy three types of plane tickets.

They can buy

an Economy ticket
a Premium ticket
or a Business ticket

200 people buy plane tickets.

92 males buy tickets
30 of the males buy Business tickets
62 females buy Economy tickets

A total of 44 people buy Business tickets.

A total of 60 people buy Premium tickets.

How many males buy Premium tickets?
You must show all your working.

(Total for question = 4 marks)

Q2. Milk is sold in $\frac{1}{2}$ pint bottles, in 1 pint bottles and in 2 pint bottles.

One weekend a shop sold 100 bottles of milk.

46 of the bottles were sold on Sunday.

15 of the bottles sold on Sunday were 2 pint bottles.

31 of the bottles sold on Saturday were $\frac{1}{2}$ pint bottles.

22 of the bottles sold were 2 pint bottles.

30 of the bottles sold were 1 pint bottles.

How many 1 pint bottles were sold on Sunday?

(Total for question = 4 marks)

Q3. Here is a list of numbers.

1 2 4 5 7 11 13 14 15 17

From the list, write down **three different** prime numbers that add together to make 20

(Total for Question is 3 marks)

Q4. 60 children go to a nursery.

The ratio of girls to boys is 3 : 2

The children go to the nursery either in the morning or in the afternoon.

$\frac{3}{4}$ of the children go to the nursery in the morning.

The rest of the children go to the nursery in the afternoon.

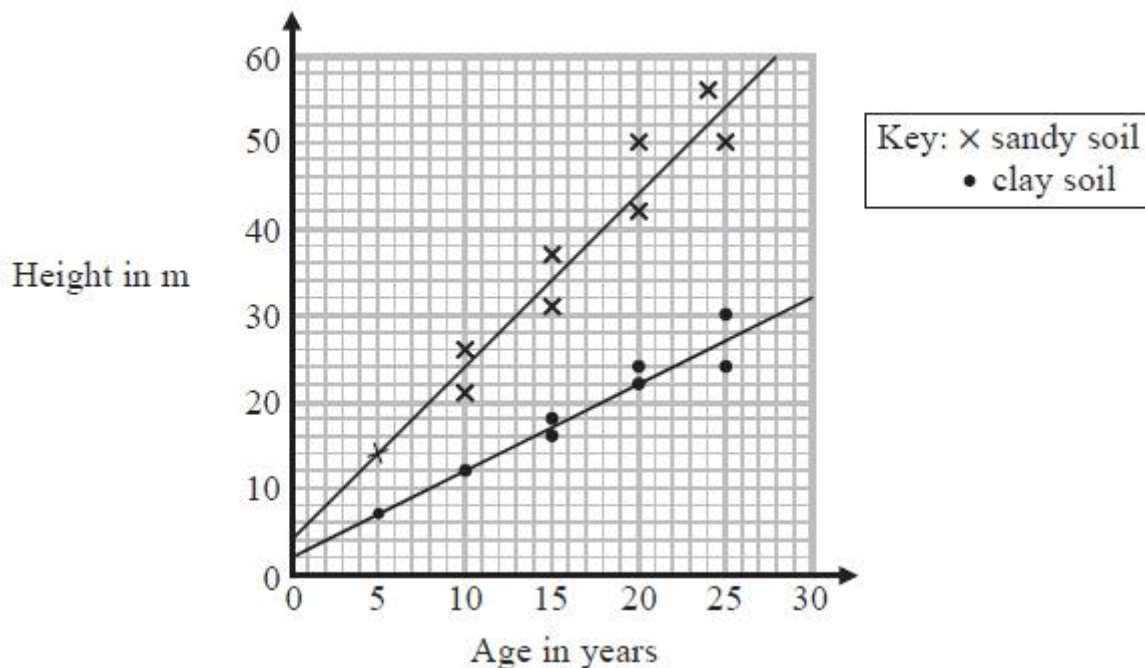
7 boys go to the nursery in the afternoon.

Work out how many girls go to the nursery in the morning.

(Total for question = 5 marks)

Q5. Bill wants to compare the heights of pine trees growing in sandy soil with the heights of pine trees growing in clay soil.

The scatter diagram gives some information about the heights and the ages of some pine trees.



(a) Describe the relationship between the height of pine trees and the age of pine trees growing in sandy soil.

(1)

A pine tree growing in clay soil is 18 years old.

(b) Find an estimate for the height of this tree.

(1)

A pine tree is growing in sandy soil.

(c) Work out an estimate for how much the height of this tree increases in a year.

(2)

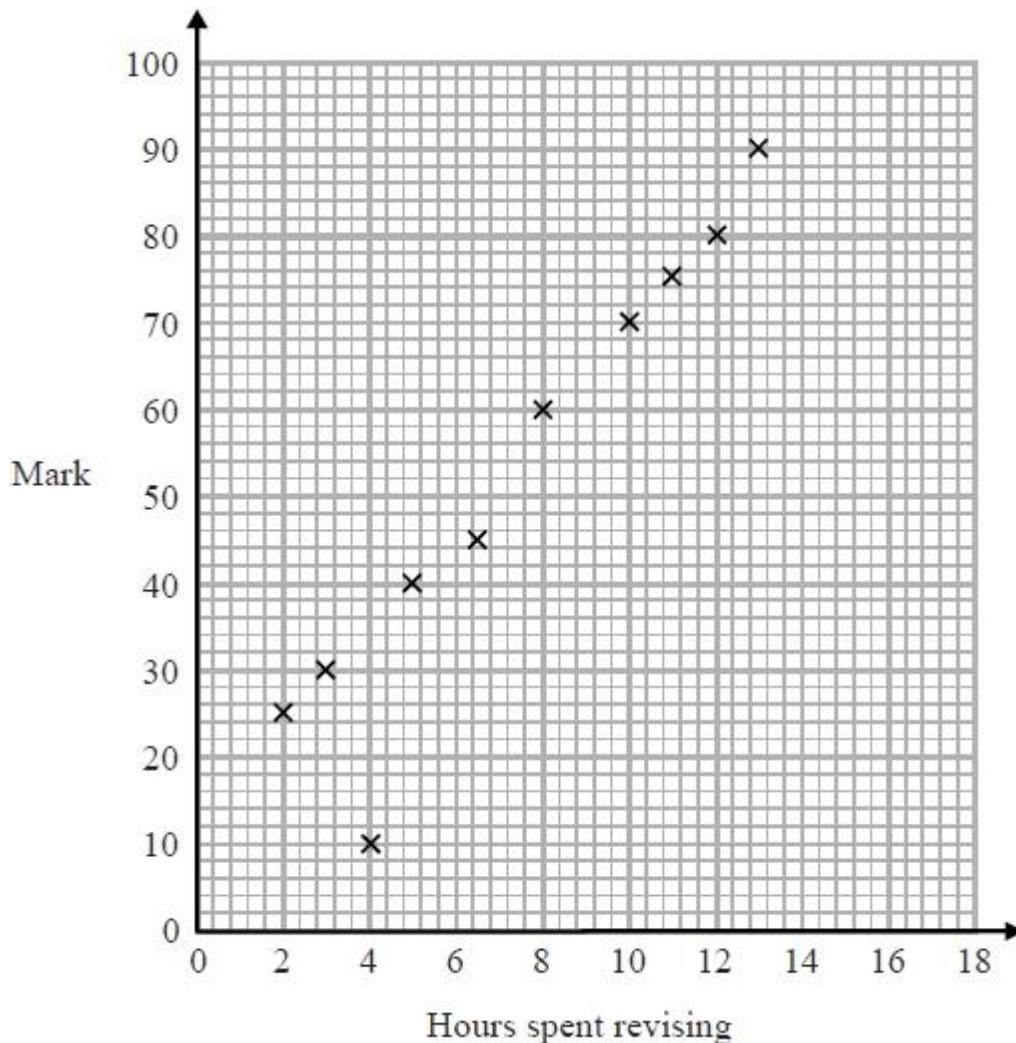
(d) Compare the rate of increase of the height of trees growing in clay soil with the rate of increase of the height of trees growing in sandy soil.

(2)

(Total for question = 6 marks)

Q6. The scatter diagram shows information about 10 students.

For each student, it shows the number of hours spent revising and the mark the student achieved in the Spanish test.



One of the points is an outlier.

(a) Write down the coordinates of the outlier.

(1)

For all the **other** points

(b) (i) draw the line of best fit,
(ii) describe the correlation.

(2)

A different student studies for 9 hours.

(c) Estimate the mark gained by this student.

(1)

The Spanish test was marked out of 100

Lucia says: "I can see from the graph that had I revised for 18 hours I would have got full marks."

(d) Comment on what Lucia says.

(1)

(Total for question is 5 marks)

Q7. Write down three different multiples of 4 that add up to 40

(Total for question = 2 marks)

Q8. Here are two numbers.

29 37

Nadia says both of these numbers can be written as the **sum** of two square numbers.

Is Nadia correct?

You must show how you get your answer.

(Total for question is 3 marks)

Q9. 100 students had some homework.

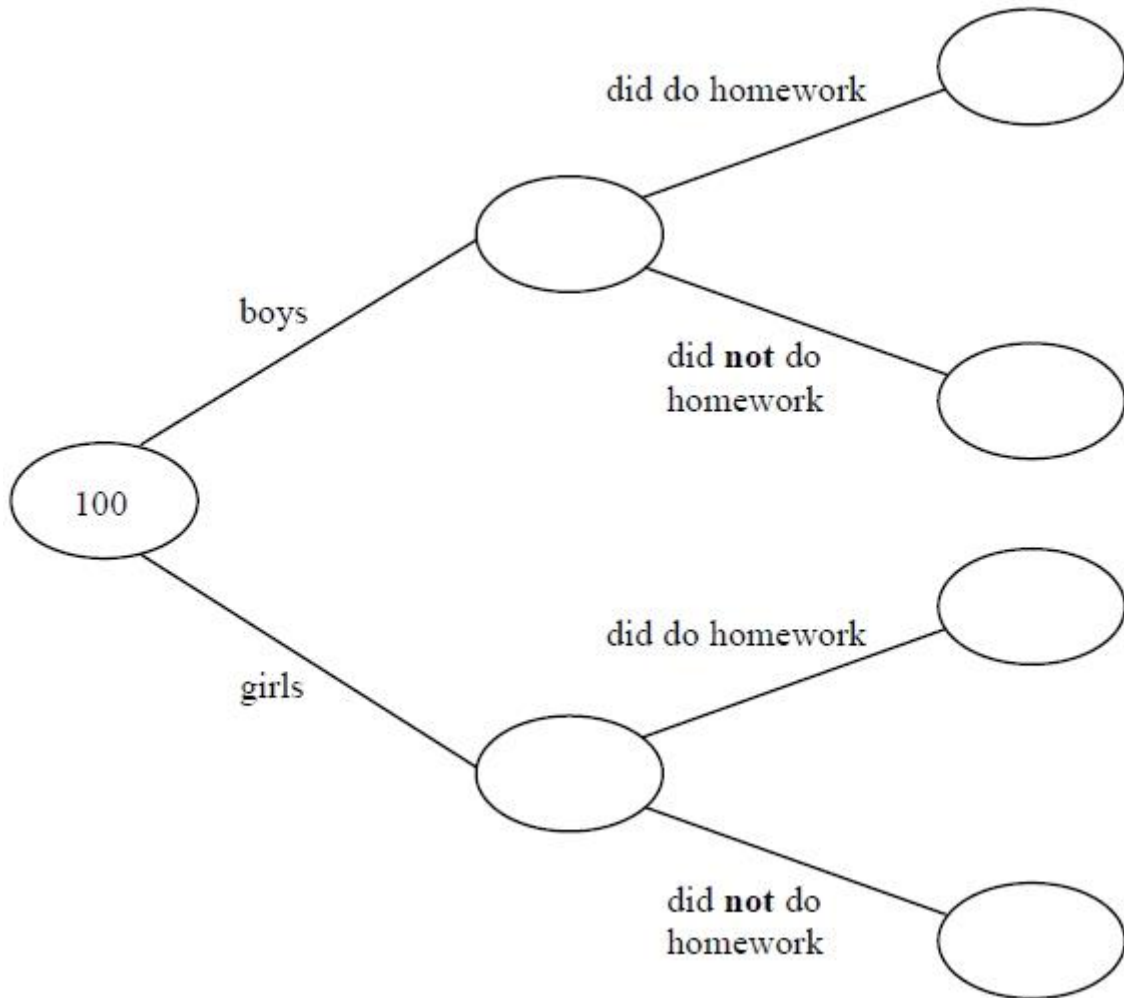
42 of these students are boys.

8 of the 100 students did **not** do their homework.

53 of the girls did do their homework.

(a) Use this information to complete the frequency tree.

(3)



One of the girls is chosen at random.

(b) Work out the probability that this girl did **not** do her homework.

.....
(2)

(Total for question = 5 marks)

Q10. Adam says,

"When you multiply an even number by an odd number the answer is always an odd number."

(a) Write down an example to show Adam is wrong.

(1)

Betty says,

"When you multiply two prime numbers together the answer is always an odd number."

(b) Betty is wrong.
Explain why.

(2)

(Total for question = 3 marks)

Q11. Tom and Amy set the alarms on their phones to sound at 6.45 am.

Both alarms sound together at 6.45 am.
Tom's alarm then sounds every 9 minutes.
Amy's alarm then sounds every 12 minutes.

At what time will both alarms next sound together?

(Total for question = 3 marks)

Q12. Ali is planning a party.

He wants to buy some cakes and some sausage rolls.

The cakes are sold in boxes.
There are 12 cakes in each box.
Each box of cakes costs £2.50

The sausage rolls are sold in packs.
There are 8 sausage rolls in each pack.
Each pack of sausage rolls costs £1.20

Ali wants to buy more than 60 cakes and more than 60 sausage rolls.
He wants to buy exactly the same number of cakes as sausage rolls.

What is the least amount of money Ali will have to pay?

(Total for Question is 5 marks)

Q13. Shelley sells books.

On Saturday she is going to give a free book mark and a free dust cover with each book she sells.
All the books are the same size.

Shelley needs to buy the book marks and the dust covers.

Book marks come in boxes.
Each box contains 24 book marks.

Dust covers come in packs.
Each pack contains 36 dust covers.

Shelley wants to have enough book marks and dust covers for 250 books.

She buys exactly the same number of book marks and dust covers.

Work out the number of boxes of book marks and the number of packs of dust covers she buys.
You must show all your working.

..... boxes of book marks

..... packs of dust covers

(Total for question = 4 marks)

Q14. Ashten chooses three different whole numbers between 1 and 50

The first number is a prime number.
The second number is 4 times the first number.
The third number is 6 less than the second number.

The sum of the three numbers is greater than 57

Find the three numbers.

(Total for question = 3 marks)

Q15. Write 525 as a product of its prime factors.

(Total for Question is 3 marks)

Q16. Given that $A = 2^4 \times 3^3 \times 5$ and $B = 2^3 \times 3 \times 5^2$
write down, as a product of powers of its prime factors,
(i) the highest common factor (HCF) of A and B

(ii) the lowest common multiple (LCM) of A and B .

(Total for question = 2 marks)

Q17. Write down three different factors of 18 that add together to give a prime number.

.....
(Total for question = 2 marks)

Q18. Jan writes down

one multiple of 9

two different factors of 40

Jan adds her three numbers together.

The answer is greater than 20 but less than 30

What three numbers could Jan have written down?

.....
(Total for Question is 3 marks)

Q19. Write these numbers in order of size.

Start with the smallest number.

4.2×10^5 13×10^4 30×10^{-6} -2.5×10^{-4} 0.0052×10^6

(Total for Question is 3 marks)

Q20. (a) Write 450 000 in standard form.

(b) Write 3.2×10^{-4} as an ordinary number.

(Total for question = 2 marks)

Q21. Work out the value of $(9 \times 10^{-4}) \times (3 \times 10^7)$ Give your answer in standard form.

(Total for question = 2 marks)

Q22. Rob is learning about the planets.

Rob makes a model of the Sun.
He also makes a model of the planet Jupiter.

Rob is going to hang the two models in the school hall.

Rob wants a distance of 16 m between the two models.
The real distance between the planet Jupiter and the Sun is 8×10^8 km.

Work out the scale Rob should use.
Give your answer in the form $1 : n$

(Total for Question is 3 marks)

Q23. One sheet of paper is 9×10^{-3} cm thick.

Mark wants to put 500 sheets of paper into the paper tray of his printer.
The paper tray is 4 cm deep.

Is the paper tray deep enough for 500 sheets of paper?
You must explain your answer.

(Total for Question is 3 marks)