

# GCSE Boot Camp

## Higher Maths Week 4 Workbook

Questions



# GCSE Boot Camp

## Topics

**Hello! Welcome to week 4 of your 8 week GCSE Boot Camp.**

Every week you'll get a practice workbook to work through a range of topics, taken from our GCSE Higher Intermediate course.

We've also included links to 2 of our expert tutorial videos on some of these exact questions. That way, if you get stuck, you can try watching one of our tutorial videos with our Maths expert Patricia.

For full access to all of the corresponding videos sign up for a SchoolOnline subscription from £8.99 a month.

In next week's email we'll send you the answers to this workbook to download *PLUS* a brand new workbook to practice.

*Your week 4 workbook topics are:*

- Number topics including questions on Fractions, VAT Problems & Estimating
- Pythagoras and Trigonometry
- Ratio, Proportion & Rates of change



# Number GCSE Higher 1

Estimating

## Sample B Higher Non-Calc Paper 1

7 A shop has a sale.

Microwave ovens $\frac{1}{3}$ off normal price
---

Combination ovens 40% off normal price
---

A microwave oven has a sale price of £90  
A combination oven has a sale price of £84

Which of these ovens has the greater normal price?  
You must show all your working.

(Total for Question 7 is 4 marks)

Fractions

## Sample B Higher Non-Calc Paper 1

- 5 One sheet of A3 card has area  $\frac{1}{8}$  m<sup>2</sup>.  
The card has a mass of 160 g per m<sup>2</sup>.

Work out the total mass of 25 sheets of A3 card.

.....  
(Total for Question 5 is 4 marks)

VAT problem

## June 2017 Higher Non-Calc Paper 1

9 Jules buys a washing machine.

20% VAT is added to the price of the washing machine.

Jules then has to pay a total of £600

What is the price of the washing machine with **no** VAT added?

£.....

---

(Total for Question 9 is 2 marks)

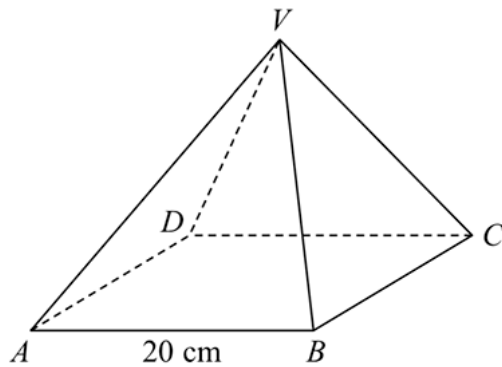


# Pythagoras & Trigonometry 1

3D Trigonometry

### Sample A Higher Calc Paper 3

16  $VABCD$  is a solid pyramid.



$ABCD$  is a square of side  $20\text{ cm}$ .

The angle between any sloping edge and the plane  $ABCD$  is  $55^\circ$

Calculate the surface area of the pyramid.

Give your answer correct to 2 significant figures.

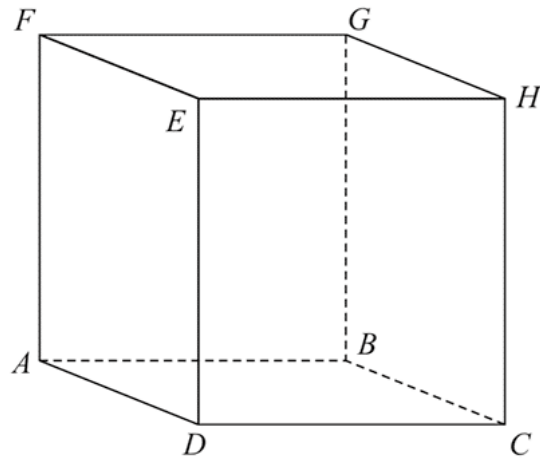
..... $\text{cm}^2$

(Total for Question 16 is 5 marks)



## June 2018 Higher Calc Paper 2

18  $ABCDEFGH$  is a cuboid.



$$AB = 7.3 \text{ cm}$$

$$CH = 8.1 \text{ cm}$$

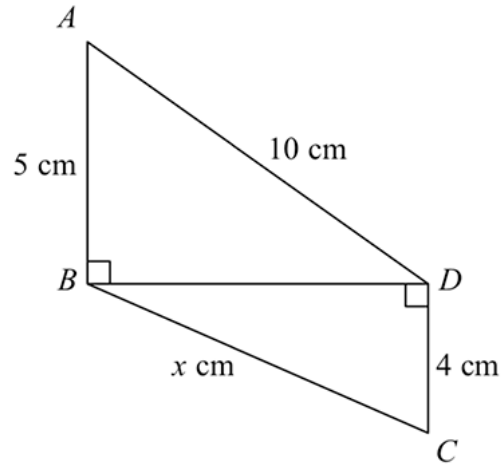
$$\text{Angle } BCA = 48^\circ$$

Find the size of the angle between  $AH$  and the plane  $ABCD$ .  
Give your answer correct to 1 decimal place.

Pythagoras Theorem

**Sample A Higher Calc Paper 2**

6 Triangles  $ABD$  and  $BCD$  are right-angled triangles.



Work out the value of  $x$ .  
Give your answer correct to 2 decimal places.

.....  
(Total for Question 6 is 4 marks)

# GCSE Boot Camp

Expert tutorial

The screenshot shows a video player interface for a GCSE Mathematics tutorial. The video title is "GCSE MATHEMATICS PAPER 2 (Calculator)" and the question number is "6". The problem text reads: "In  $\triangle ABD$  we need to find  $BD$ ". Below this, it states: "Triangles  $ABD$  and  $BCD$  are right-angled triangles." A diagram shows two right-angled triangles,  $ABD$  and  $BCD$ , sharing a common horizontal base  $BD$ . Triangle  $ABD$  has a vertical side  $AB = 5$  cm and a hypotenuse  $AD = 10$  cm. Triangle  $BCD$  has a vertical side  $CD = 4$  cm and a horizontal side  $BD = x$  cm. The video player includes a "Click to play!" button with a white arrow pointing to the video content.

**Need some extra help? That's what we're here for!**

In this video Patricia will explain how to answer the last question on the Pythagoras and Trigonometry section of your workbook (Q6) which looks at Pythagoras Theorem.

Grab your pen and paper and remember to take notes! If you want more access to awesome videos like this, [sign up for a full SchoolOnline subscription here.](#)



## Ratio, Proportion & Rates of Change GCSE 2

Ratio

### Sample B Higher Calc Paper 2

6 On a farm

the number of cows and the number of sheep are in the ratio 6 : 5  
the number of sheep and the number of pigs are in the ratio 2 : 1

The total number of cows, sheep and pigs on the farm is 189

How many sheep are there on the farm?

.....  
(Total for Question 6 is 3 marks)

Ratio and Percentage

## Sample A Higher Non-Calc Paper 1

5 In a company, the ratio of the number of men to the number of women is 3 : 2

40% of the men are under the age of 25

10% of the women are under the age of 25

What percentage of all the people in the company are under the age of 25?

.....%

**(Total for Question 5 is 4 marks)**

Ratio

## Sample B Higher Calc Paper 3

- 1 The ratio of the number of boys to the number of girls in a school is 4:5  
There are 95 girls in the school.

Work out the total number of students in the school.

.....  
(Total for Question 1 is 3 marks)

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# GCSE Boot Camp

Expert tutorial



**Need some extra help? That's what we're here for!**

In this video Patricia will explain how to answer the first question on the Number section of your workbook (Q7) which looks at Estimating.

Grab your pen and paper and remember to take notes! If you want more access to awesome videos like this, [sign up for a full SchoolOnline subscription here.](#)



# GCSE Boot Camp

## Topics

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*Week 1's workbook topics are:*

- Algebra
- Ratio, Proportion and Rates of Change

