

8300

GCSE MATHEMATICS

Foundation and Higher tier – Questions by Topic

Number

Percentage change

v1.0

Name _____

Materials

For this paper you must have:

- Mathematical instruments

Information

- The marks for questions are shown in brackets

Advice

- In all calculations, show clearly how you work out your answer

Questions 1 to 5 are **foundation** tier only

For question 1 you must **NOT** use a calculator.



Q1.

The table shows monthly payments for electricity.

October	November
£120	£240

Write down the percentage increase from October to November.

(Total 1 mark)

For questions 2 to 5 you may use a calculator.



Q2.

Carly's total annual pay = salary + bonus

	Salary	Bonus
Last year	£26 000	£4000
This year	6% increase	9% decrease

Work out the percentage change in her total annual pay.
State whether it is an increase or a decrease.

(Total 4 marks)

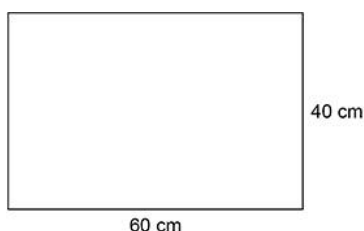
Q3.

In 1999 the minimum wage for adults was £3.60 per hour. In 2013 it was £6.31 per hour.
Work out the percentage increase in the minimum wage.

(Total 3 marks)

Q4.

A rectangle has length 60 cm and width 40 cm



Not drawn accurately

The length decreases by 15%. The width decreases by 10%
Sue says, "The perimeter decreases by 25% because 15% + 10% is 25%"
Is she correct? You **must** show calculations to support your answer.

(Total 4 marks)

Q5.

Laura works in a shop.

The table shows the number of hours she works on two weekends.

	Saturday	Sunday
Weekend 1	3	2
Weekend 2	$5\frac{1}{2}$	$3\frac{1}{2}$

Work out the percentage increase in her **total** hours from Weekend 1 to Weekend 2

(Total 3 marks)

Questions 6 to 17 are **higher** tier only

For questions 6 to 9 you must **NOT** use a calculator.



Q6.

The cash price for a boiler is £2000
Customers can pay the cash price or pay monthly.

Cash Price £2000

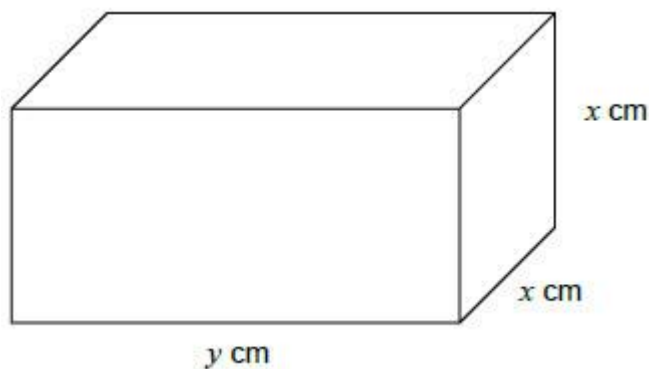
Pay Monthly 60 monthly payments of £40
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Work out the percentage increase from the cash price when paying monthly.

(Total 4 marks)

Q7.

A cuboid has dimensions x cm, x cm and y cm.



x is increased by 10%

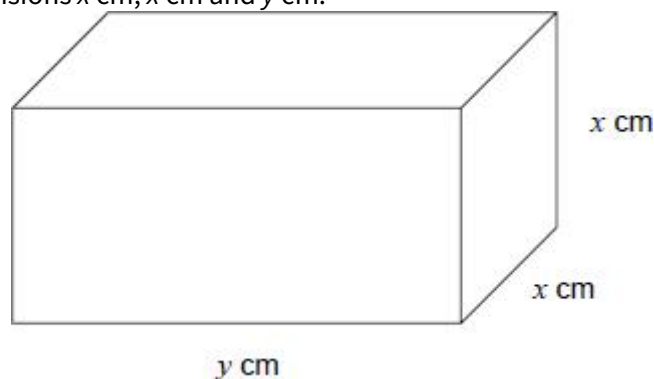
y is increased by 20%

Work out and describe the percentage change in the volume of the cuboid.

(Total 4 marks)

Q8.

A cuboid has dimensions x cm, x cm and y cm.



x is increased by 20%

y is decreased by 10%

Work out and describe the percentage change in the volume of the cuboid.

(Total 4 marks)

Q9.

A price of a new car is usually £12 500.
The price is reduced to £11 750.
Work out the percentage reduction.

(Total 3 marks)

For questions 10 to 17 you may use a calculator.



Q10.

- (a) A company receives 1250 orders in December.
It has a January sale.
It receives 1430 orders in January.
Work out the percentage increase in orders.
- (b) The company sends out a questionnaire to customers.
One of the questions is “How long did your order take to arrive?”
Write a suitable response section for this question.

(3)

(2)

(Total 5 marks)

Q11.

A car is advertised for £3000.
The car will be in a sale next month.
Tom can afford to pay £2500.
By what percentage will the price have to be reduced so that he can afford the car?

(Total 3 marks)

Q12.

The normal price of a television is £1200
It is reduced to £970
Work out the percentage reduction.
Give your answer to 1 decimal place.

(Total 3 marks)

Q13.

A smoothie recipe uses banana, kiwi and yoghurt in the ratio 4 : 1 : 3 by weight.

- (a) A smoothie is made using 280 g of banana.
How much kiwi and yoghurt are needed?
- (b) Express the weight of kiwi as a percentage of the weight of the smoothie.
- (c) Each smoothie costs 72p to make.
- (i) The smoothies are sold at the school fayre.
The school wants to make at least 30% profit on each smoothie.
Work out the cheapest selling price to do this.
- (ii) The cost of banana for one smoothie is 15p.
The price of bananas increases by 40%.
Work out the percentage increase in the cost of making a smoothie.

(3)

(2)

(4)

(4)

(Total 13 marks)

Q14.

Nick went to a football training camp.

- (a) He weighed 80 kg before the training camp.
He weighed 74 kg after the training camp.
Work out his percentage weight loss.

(3)

- (b) Nick's backpack weighs 12 kg to the nearest kilogram.
What is the least the backpack could weigh?
Circle the correct answer.

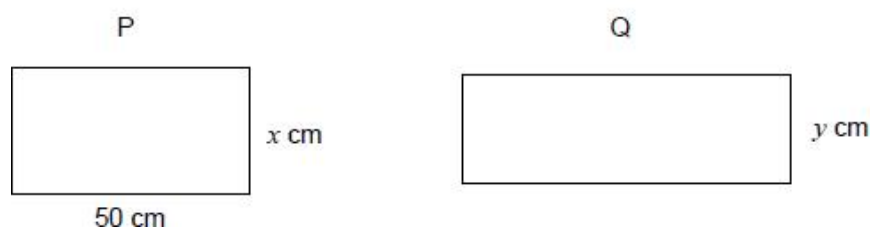
11.4 kg 11.5 kg 11.6 kg 11.9 kg 12 kg

(1)**(Total 4 marks)****Q15.**

P is a rectangle with length 50 cm and width x cm.

Q is a rectangle with width y cm.

Not drawn
accurately



The length of Q is 20% **more** than the length of P.

The area of Q is 10% **less** than the area of P.

Work out the ratio $x : y$

Give your answer in its simplest form.

(Total 4 marks)**Q16.**

A company makes and sells boxes of washing powder.



The company wants to increase the amount of money it receives **per kg** of powder.

To get the required increase it can

increase the price to £5.88

or

reduce the mass of powder in the box by $x\%$

Work out the value of x to 2 decimal places.

(Total 4 marks)**Q17.**

In 1981 the population of England was 46 million.

In 2011 the population of England was 53 million.

Work out the increase in population as a percentage of the 1981 figure.

(Total 3 marks)