
GCSE
MATHEMATICS (8300)
HIGHER
Number

Total number of marks: 33 per optional item

Instructions:

- This test was designed so that the first 5 questions are assessed without calculator.

Q5

Write 36 as a product of prime factors.

Give your answer in index form.

(Total 3 marks)

Q7

$\frac{3}{5}$ of a number is 162

Work out the number.

(Total 2 marks)

Q8

Work out the value of $(3^{12} \div 3^5) \div (3^2 \times 3)$

(Total 3 marks)

Q16

Circle the number that is closest to the value of 29^3

27 000

90

2700

9000

(Total 1 mark)

Q5

Work out $8\frac{1}{2} \div 2\frac{2}{3}$

Give your answer as a mixed number.

(Total 4 marks)

Q6

To the nearest pound, Jon has £9

To the nearest 50p, Ellie has £6.50

Work out the maximum possible total amount of money.

Answer £ _____ (Total 3 marks)

Q22

Show that $(5\sqrt{3} - \sqrt{12})^2$ simplifies to an integer.

(Total 3 marks)

Q15a**Meal Deal**

Choose one sandwich, one drink and one snack

There are

7 different sandwiches

5 different drinks

and

3 different snacks.

- (a) How many different Meal Deal combinations are there?

(Total 2 marks)

Q11

Work out

cube root of 512 : reciprocal of 0.4

Give your answer in the form $n : 1$

Answer _____ : _____

(Total 3 marks)

Q15

When you earn money you pay income tax.

The amount you pay depends on how much you earn that year.

You pay

0% on the first £12 500 you earn

20% on the next £37 500 you earn

40% on the next £112 500 you earn.

One year, Kim paid £9260 income tax.

Work out how much she earned that year.

(Total 4 marks)

Q6

Show that 268 can be written as the sum of a power of 3 and a square number.

(Total 2 marks)

Q27

Prove algebraically that $2.\dot{7}\dot{5}$ converts to the fraction $\frac{124}{45}$

(Total 3 marks)
