Name: SOLUTIONS

GCSE (1 - 9)

Prime Factors, HCF and LCM



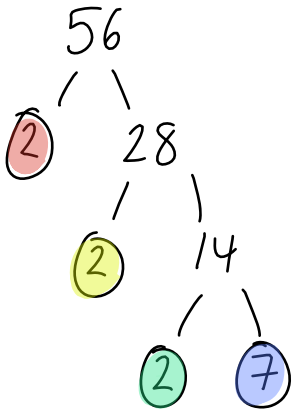
Solutions by
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These questions are compiled from *released* Pearson Edexcel GCSE maths exam papers
They contain exam questions from up until the ***Summer 2023*** exam series
More recent exam papers do exist but are withheld for mock exams
As new exam papers are released these worksheets will gradually be updated
The ***most current*** version of these worksheets will always be available at: kennethstafford.co.uk

Question	Where the question appeared
1	Edexcel, GCSE, Summer 2017, Paper 1F, Q22
2	Edexcel, GCSE, Autumn 2017, Paper 1F, Q23
3	Edexcel, GCSE, Summer 2018, Paper 2F, Q21
4	Edexcel, GCSE, Autumn 2018, Paper 3F, Q15
5	Edexcel, GCSE, Summer 2019, Paper 1F, Q24
6	Edexcel, GCSE, Autumn 2019, Paper 1F, Q20
7	Edexcel, GCSE, Autumn 2020, Paper 2F, Q22
8	Edexcel, GCSE, Summer 2022, Paper 1F, Q24
9	Edexcel, GCSE, Summer 2023, Paper 2F, Q21
10	Edexcel, GCSE, Summer 2023, Paper 3F, Q24
11	Edexcel, GCSE, November 2022, Paper 1F, Q19

1

Express 56 as the product of its prime factors.



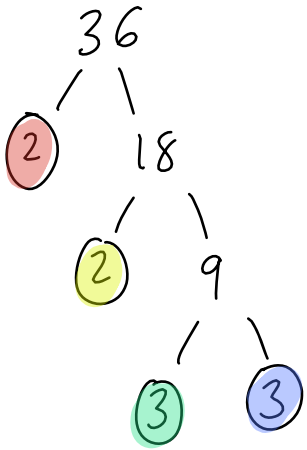
2 x 2 x 2 x 7

(Total for Question 22 is 2 marks)

[Edexcel, GCSE, Summer 2017, Paper 1F, Q22]

2

Write 36 as a product of its prime factors.



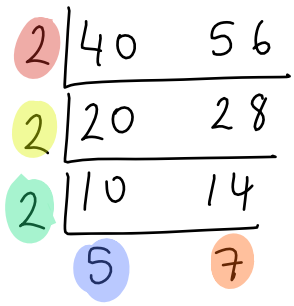
2 x 2 x 3 x 3

(Total for Question 23 is 2 marks)

[Edexcel, GCSE, Autumn 2017, Paper 1F, Q23]

3

(a) Find the lowest common multiple (LCM) of 40 and 56



$2 \times 2 \times 2 \times 5 \times 7 = 280$

.....

(2)

$A = 2^3 \times 3 \times 5$ $B = 2^2 \times 3 \times 5^2$

(b) Write down the highest common factor (HCF) of A and B.

$HCF = 2^2 \times 3 \times 5 = 60$

60

.....

(1)

(Total for Question 21 is 3 marks)

[Edexcel, GCSE, Summer 2018, Paper 2F, Q21]

4

Bert has 100 cards.
There is a whole number from 1 to 100 on each card.
No cards have the same number.

Bert puts a star on every card that has a multiple of 3 on it.
He puts a circle on every card that has a multiple of 5 on it.

Work out how many cards have both a star and a circle on them.

LCM of 3 and 5 is 15

Multiples of 15 are: 15, 30, 45, 60, 75, 90, 105

6 cards

(Total for Question 15 is 3 marks)

[Edexcel, GCSE, Autumn 2018, Paper 3F, Q15]

5

Find the highest common factor (HCF) of 72 and 90

2	72	90
3	36	45
3	12	15
	4	5

$2 \times 3 \times 3 = 18$

(Total for Question 24 is 2 marks)

[Edexcel, GCSE, Summer 2019, Paper 1F, Q24]

6

Find the Lowest Common Multiple (LCM) of 108 and 120

2	108	120
2	54	60
3	27	30
	9	10

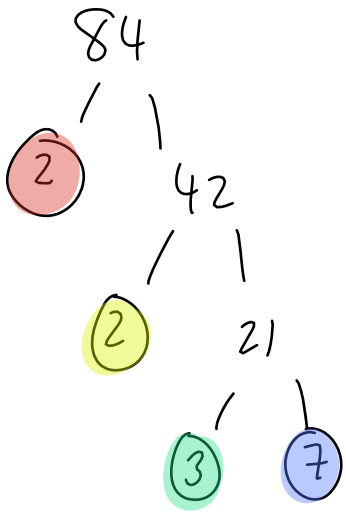
$2 \times 2 \times 3 \times 9 \times 10 = 1080$

(Total for Question 20 is 3 marks)

[Edexcel, GCSE, Autumn 2019, Paper 1F, Q20]

7

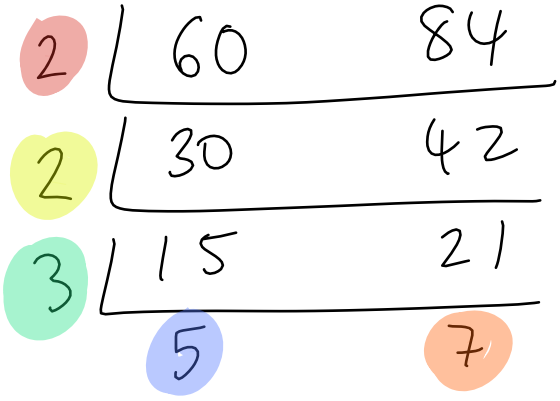
(a) Write 84 as a product of its prime factors.



$2 \times 2 \times 3 \times 7$

(2)

(b) Find the lowest common multiple (LCM) of 60 and 84



$2 \times 2 \times 3 \times 5 \times 7 = 420$

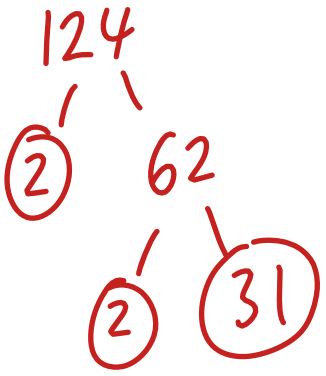
(2)

(Total for Question 21 is 4 marks)

[Edexcel, GCSE, Autumn 2020, Paper 2F, Q22]

8

Write 124 as a product of its prime factors.



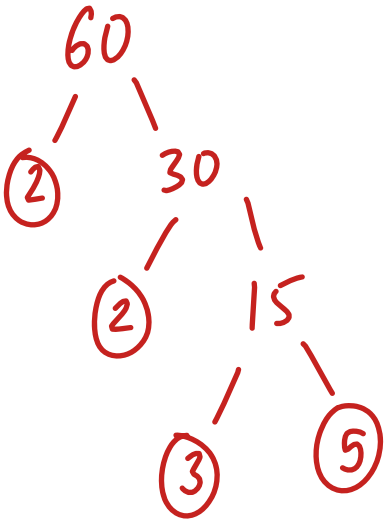
2x2x31

(Total for Question 2 is 2 marks)

[Edexcel, GCSE, Summer 2022, Paper 1F, Q24]

9

Write 60 as a product of its prime factors.



2 x 2 x 3 x 5

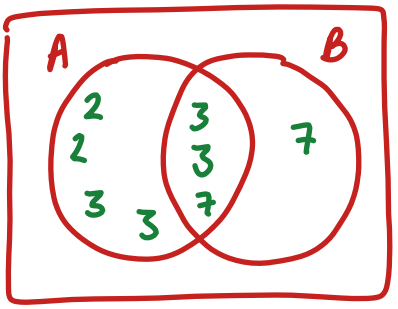
(Total for Question 21 is 2 marks)

[Edexcel, GCSE, Summer 2023, Paper 2F, Q21]

10

A and B are numbers such that

$$A = 2^2 \times 3^4 \times 7$$
$$B = 3^2 \times 7^2$$



(a) Find the highest common factor (HCF) of A and B.

$3 \times 3 \times 7 = 63$

(1)

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

$2^2 \times 3^4 \times 7^2 = 15876$

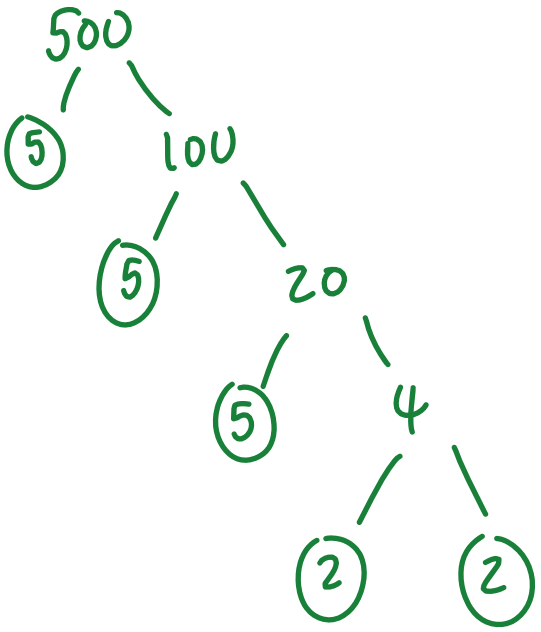
(2)

(Total for Question 24 is 3 marks)

[Edexcel, GCSE, Summer 2023, Paper 3F, Q24]

11

Write 500 as a product of powers of its prime factors.



$2^2 \times 5^3$

(Total for Question 19 is 3 marks)

[Edexcel, GCSE, November 2022, Paper 1F, Q19]