

PRIME FACTORS, HCF AND LCM

Pearson Edexcel - Tuesday 21 May 2019 - Paper 1 (Non-Calculator) Higher Tier

1.

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

.....
(Total for Question 3 is 2 marks)

Pearson Edexcel - Thursday 7 June 2018 - Paper 2 (Calculator) Higher Tier

2.

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

.....
(2)

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

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

.....
(1)

(Total for Question 2 is 3 marks)

Pearson Edexcel - Specimen Papers Set 2 - Paper 3 (Calculator) Higher Tier

3.

15 Show that $\frac{a}{b+1} - \frac{a}{(b+1)^2}$ can be written as $\frac{ab}{(b+1)^2}$

(Total for Question 15 is 2 marks)

Pearson Edexcel - Wednesday 5 November 2014 - Paper 1 (Non-Calculator) Higher Tier

4.

13 (a) Express 180 as a product of its prime factors.

.....
(3)

Martin thinks of two numbers.

He says,

“The Highest Common Factor (HCF) of my two numbers is 6
The Lowest Common Multiple (LCM) of my two numbers is a multiple of 15”

(b) Write down **two** possible numbers that Martin is thinking of.

.....
(2)

.....
(Total for Question 13 is 5 marks)
.....

Pearson Edexcel - Monday 14 November 2011 - Paper 4 (Calculator) Higher Tier

5.

4. (a) Find the highest common factor (HCF) of 24 and 30

.....
(1)

(b) Find the lowest common multiple (LCM) of 4, 5 and 6

.....
(2)

(Total 3 marks)

Pearson Edexcel - Friday 10 June 2011 - Paper 4 (Calculator) Higher Tier

6.

3. (a) Express 45 as a product of its prime factors.

.....
(2)

(b) Find the Highest Common Factor (HCF) of 45 and 30

.....
(2)

(Total 4 marks)

Pearson Edexcel - Friday 12 November 2010 - Paper 4 (Calculator) Higher Tier

7.

20. (a) Write 56 as a product of its prime factors.

.....
(2)

(b) Find the Highest Common Factor (HCF) of 56 and 42

.....
(2)

.....
(Total 4 marks)

OCR GCSE – Tuesday 5 November 2019 – Paper 4 (Calculator) Higher Tier

8.

3 At a railway station, trains are either eastbound or westbound.
An eastbound train leaves the station every 25 minutes.
A westbound train leaves the station every 45 minutes.

An eastbound train and a westbound train both leave the station at 8 am.

When is the next time that two trains leave the station together?

..... [4]

OCR GCSE – Thursday 7 November 2019 – Paper 5 (Non-Calculator) Higher Tier

9.

2 Given that $168 = 2^3 \times 3 \times 7$, find the lowest common multiple (LCM) of 168 and 30.

..... [3]

OCR GCSE – Tuesday 11 June 2019 – Paper 6 (Calculator) Higher Tier

11 You are given that

$$270 = 3^3 \times 2 \times 5 \quad \text{and} \quad 177\,147 = 3^{11}$$

- (a) (i)** Find the lowest common multiple (LCM) of 270 and 177 147.
Give your answer using power notation and as an ordinary number.

(a)(i) using power notation
as an ordinary number **[2]**

- (ii)** Write 177 147 000 000 as a product of its prime factors.

(ii) **[3]**

(b) $3^n = 177\,147 \times 9^5$.

Find the value of n .

(b) $n =$ **[3]**

OCR GCSE – Tuesday 6 November 2018 – Paper 4 (Calculator) Higher Tier

11.

- 8 (a) Two numbers, P and Q , are written as products of their prime factors.

$$P = 2^5 \times 3^2 \times 5^3 \times 11 \qquad Q = 2^4 \times 3 \times 5^4 \times 7$$

- (i) Find the lowest common multiple (LCM) of P and Q .

(a)(i) [2]

- (ii) The number C is written as the product of its prime factors.

$$C = 2^3 \times 3 \times 5^2$$

Work out $P \div C$, leaving your answer as a product of powers of prime numbers.

(ii) [2]

- (b) (i) Write 450 as a product of its prime factors.

(b)(i) [3]

- (ii) Find the highest common factor (HCF) of 270 and 450.

(ii) [3]

OCR GSCE – Thursday 24 May 2018 – Paper 4 (Calculator) Higher Tier

12.

- 3 (a) (i) Write 120 as a product of its prime factors.

(a)(i) [3]

- (ii) The lowest common multiple (LCM) of x and 120 is 360.

Find the smallest possible value of x .

(ii) [2]

- (b) Two numbers, A and B , are written as a product of prime factors.

$$A = 2^4 \times 3^2 \times 7^2 \quad B = 2^3 \times 3 \times 5 \times 7$$

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

(b) [2]

13.

3 (a) Write 504 as the product of its prime factors.

(a) [3]

(b) Find the lowest common multiple (LCM) of 180 and 504.

(b) [2]

AQA GCSE – Thursday 4 June 2020 – Paper 2 (Calculator) Higher Tier

14.

6 Work out the highest common factor (HCF) of 75 and 105

[2 marks]

Answer _____

AQA GCSE – Tuesday 11 June 2019 – Paper 3 (Calculator) Higher Tier

15.

3 Circle the lowest common multiple (LCM) of 5, 15 and 25

[1 mark]

5 45 75 150

AQA GSCE – Monday 12 November 2018 – Paper 3 (Calculator) Higher Tier

16.

- 4 Work out the lowest common multiple (LCM) of 20, 30 and 40
Circle your answer.

[1 mark]

10

120

240

24 000

AQA GSCE – Tuesday 12 June 2018 – Paper 3 (Calculator) Higher Tier

17.

- 5 a is a common factor of 72 and 120
 b is a common multiple of 6 and 9

Work out the highest possible value of $\frac{a}{b}$

[4 marks]

Answer _____

AQA GSCE – Wednesday 8 November 2017 – Paper 3 (Calculator) Higher Tier

18.

15 Circle the highest common factor (HCF) of $6xy^2$ and $4x^3y$

[1 mark]

$2xy^2$

$2xy$

$12x^3y^2$

$24x^4y^3$

AQA GSCE – Wednesday 8 November 2017 – Paper 3 (Calculator) Higher Tier

19.

21 N is a number.

As a product of prime factors in index form $N = 2 \times 3^4 \times y^3$

Work out $3N^2$ as a product of prime factors in index form.

Give your answer in terms of y .

[3 marks]

Answer _____

AQA GSCE – Wednesday 25 May 2017 – Paper 1 (Non - Calculator) Higher Tier

20.

- 5** Write 36 as a product of prime factors.
Give your answer in index form.

[3 marks]

Answer _____

AQA GCSE – Sample Paper 2 (Calculator) Higher Tier

21.

9 Written as the product of its prime factors

$$672 = 2^5 \times 3 \times 7$$

9 (a) Write 252 as the product of its prime factors.

[2 marks]

Answer _____

9 (b) Work out the value of the highest common factor of 672 and 252

[1 mark]

Answer _____