

8300

GCSE MATHEMATICS

Foundation tier – Questions by Topic

Number

Finding the highest common factor (HCF)

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

For questions 1 to 5 you must **NOT** use a calculator.



Q1.

Circle the **two pairs** of numbers that have

Highest Common Factor (HCF) 4

and

Least Common Multiple (LCM) 60

4 and 60

4 and 30

4 and 12

12 and 30

12 and 20

(Total 2 marks)

Q2.

Work out the Highest Common Factor (HCF) of 24 and 42

(Total 2 marks)

Q3.

Work out the Highest Common Factor (HCF) of 72 and 126.

(Total 2 marks)

Q4.

Work out the Highest Common Factor (HCF) of 36 and 81.

(Total 2 marks)

Q5.

Work out the Highest Common Factor (HCF) of 110 and 132

(Total 2 marks)

For the rest of the questions, you may use a calculator.



Q6.

Work out the highest common factor (HCF) of 12 and 18

(Total 2 marks)

Q7.

Work out the highest common factor (HCF) of 12 and 20

(Total 2 marks)

Q8.

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

(Total 2 marks)

Q9.

Work out the highest common factor (HCF) of 15 and 20

(Total 1 mark)

Q10.

- (a) I am thinking of two different numbers.
 They are both greater than 10
 Their highest common factor (HCF) is half the smaller number.
 Work out one possible pair of numbers.

(1)

- (b) a , b and c are prime numbers.

$$N = a^3 \times b^2 \times c$$

Is N always odd?

Tick a box.

Yes

☐

No

☐

Give reasons for your answer.

(2)**(Total 3 marks)****Q11.**

$$x = 2^2 \times 3 \times 5 \quad y = 2 \times 3^2 \times 5^2$$

- (a) Work out the Highest Common Factor (HCF) of x and y .

(1)

- (b) Work out the Least Common Multiple (LCM) of x and y .

(2)**(Total 3 marks)****Q12.**

Written as the product of its prime factors

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

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

(2)

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

(1)**(Total 3 marks)****Q13.**

Circle the highest common factor (HCF) of $\frac{6xy^2}{2xy^2}$ and $\frac{4x^3y}{12x^3y^2}$

$$24x^4y^3$$

(Total 1 mark)**Q14.**

Q and R are two numbers.

As a product of prime factors,

$$Q = 2^3 \times 3 \times a^3$$

$$R = 2^4 \times 3^2 \times a^2$$

- (a) The highest common factor (HCF) of Q and R is 4056

Work out the value of a .

(2)

- (b) Work out the lowest common multiple (LCM) of Q and R .

(2)**(Total 4 marks)**