

Prime Factorisation, HCF and LCM

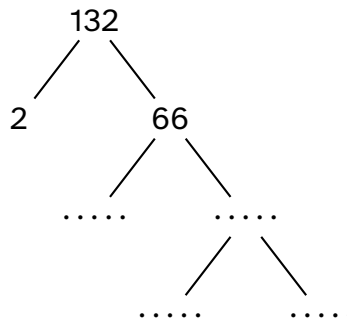
For AQA GCSE Mathematics (8300) • Foundation tier

Name _____

Total marks: **27**

Answer **all** questions in the spaces provided. Show your working: marks are given for correct method.

1 Here is an incomplete factor tree for 132



(a) Complete the factor tree for 132

[2 marks]

(b) Write 132 as a product of its prime factors.

[1 mark]

Answer _____

2 Write 280 as a product of prime factors.
Give your answer in index form.

[2 marks]

Answer _____

3 Circle the product of prime factors of 100

[1 mark]

$$4 \times 25$$

$$2 \times 5 \times 10$$

$$2^2 \times 5^2$$

$$2 \times 50$$

4 (a) Work out the highest common factor (HCF) of 36 and 90

[2 marks]

Answer _____

(b) Work out the lowest common multiple (LCM) of 14 and 21

[2 marks]

Answer _____

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

- (a) Work out the HCF of A and B .
Give your answer in index form.

[1 mark]

Answer _____

- (b) Work out the LCM of A and B .
Give your answer in index form.

[1 mark]

Answer _____

- 6** A café oven bakes scones and muffins.
A tray of scones comes out of the oven every 25 minutes.
A tray of muffins comes out of the oven every 40 minutes.
At 7:30 am a tray of scones and a tray of muffins come out together.

The oven is switched off at 4 pm.

How many more times will a tray of scones and a tray of muffins come out of the oven together before 4 pm?

[3 marks]

Answer _____

- 7 Lucy has 36 lollipops and 48 toffees.
She wants to put them into bags so that each bag has the same number of lollipops and the same number of toffees.

Work out the largest number of identical bags she can make with no sweets left over.
[2 marks]

Answer _____

- 8 Kai says,
‘120 written as a product of its prime factors is $2^2 \times 3 \times 5$ ’

Is Kai correct? Tick a box.
Give a reason for your answer.

[1 mark]

☐ Yes

☐ No

- 9 $720 = 2^a \times 3^b \times 5$

Work out the value of a and the value of b .

[2 marks]

$a =$ _____ $b =$ _____

10 $756 = 2^2 \times 3^3 \times 7$

Work out the highest common factor (HCF) of 756 and 1080

[3 marks]

Answer _____

- 11** N is a whole number.
 N is a multiple of both 6 and 15
 N is also a factor of both 180 and 450

Work out **all** the possible values of N .

[4 marks]

Answer _____