

Factors, Multiples and Primes

ANSWERS

No calculator | 30 minutes | Total marks: 30

Name Class

- 1 (a) List all the factors of 48

Answer 1, 2, 3, 4, 6, 8, 12, 16, 24, 48 (1)(1) [2 marks]

- (b) Is 2376 divisible by 9?

You **must** show how you decide.

2 + 3 + 7 + 6 = 18, and 18 is divisible by 9, so yes (1)

[1 mark]

- 2 (a) Work out the highest common factor of 36, 60 and 84

12 is a factor of all three 36 = 12 × 3 60 = 12 × 5 84 = 12 × 7 (1)

Answer 12 (1) [2 marks]

- (b) Work out the lowest common multiple of 6, 8 and 12

12, 24 24 = 6 × 4 and 24 = 8 × 3 (1)

Answer 24 (1) [2 marks]

- 3 Circle the **two** prime numbers.

39 41 51 57 67 87 91

41 and 67 circled (1)(1)

[2 marks]

- 4 Write 90 as a product of its prime factors.

90 = 2 × 45 = 2 × 5 × 9 (1)

Answer 2 × 3 × 3 × 5 (1) [2 marks]

5

Write 72 as a product of its prime factors.

Give your answer in index form.

$$72 = 8 \times 9 \text{ (1)}$$

$$= 2 \times 2 \times 2 \times 3 \times 3 \text{ (1)}$$

Answer $2^3 \times 3^2$ (1) [3 marks]

6

Write each of these in index form.

(a) $5 \times 5 \times 5 \times 5$

Answer 5^4 (1) [1 mark]

(b) $2 \times 2 \times 2 \times 7 \times 7$

Answer $2^3 \times 7^2$ (1) [1 mark]

7

(a) Simplify $3^4 \times 3^5$

Give your answer in index form.

Answer 3^9 (1) [1 mark]

(b) Simplify $\frac{7^8}{7^2}$

Give your answer in index form.

Answer 7^6 (1) [1 mark]

(c) Simplify $(5^2)^3$

Give your answer in index form.

Answer 5^6 (1) [1 mark]

(d) Write down the value of 9^0

Answer 1 (1) [1 mark]

(e) Write down the value of 6^1

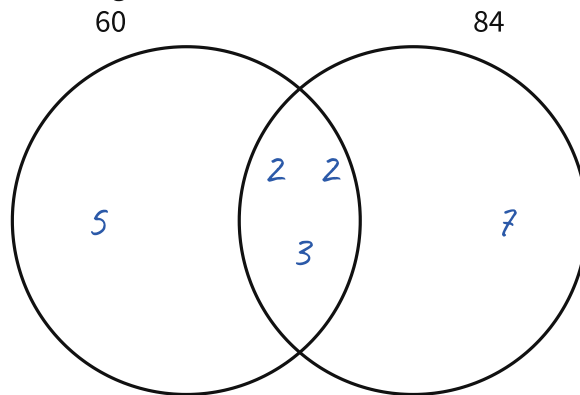
Answer 6 (1) [1 mark]

8

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

$$84 = 2 \times 2 \times 3 \times 7$$

(a) Complete the Venn diagram.



middle correct (1)

all correct (1)

[2 marks]

(b) Work out the highest common factor of 60 and 84

Answer $2 \times 2 \times 3 = 12$ (1)

[1 mark]

(c) Work out the lowest common multiple of 60 and 84

Answer $5 \times 12 \times 7 = 420$ (1)

[1 mark]

9

A red light flashes every 12 seconds.

A blue light flashes every 18 seconds.

The two lights flash at the same time.

After how many seconds do they next flash at the same time?

12, 24, 36

18, 36 (1)

Answer 36 (1)

seconds

[2 marks]

10

Simplify $\frac{2^7 \times 2^5}{2^4}$

Give your answer in index form.

$\frac{2^{12}}{2^4}$ (1)

Answer 2^8 (1)

[2 marks]

11

A number written as a product of its prime factors is $2^2 \times 3 \times 11$

Work out the number.

Answer 132 (1)

[1 mark]

Question	Topic	RAG
1	I can list factors and use divisibility rules	
2	I can find the HCF and LCM of three numbers	
3	I can recognise prime numbers up to 100	
4	I can write a number as a product of prime factors	
5	I can write a product of prime factors in index form	
6	I can write numbers in index form	
7	I can use the laws of indices	
8	I can use a Venn diagram to find an HCF and an LCM	
9	I can solve a problem using common multiples	
10	I can combine the laws of indices	
11	I can work out a number from its prime factors	