# DIFFERENT TYPE OF NUMBERS-HCF-LCM-SET-1

1

List the elements of the following sets.

**(a)** $A = \{x \mid x \in \mathbb{Z}, -4 < x \leqslant 1\}$

*Answer (a)* ..... [1]

**(b)** $B = \{\text{prime numbers between 25 and 35}\}$

*Answer (b)* ..... [1]

**(c)** $C = \{x \mid x \in \mathbb{R}, |x| = 4\}$

*Answer (c)* ..... [1]

MS-1

| | | | |
|---|---|---|---|
| **(a)** | −3, −2, −1, 0, 1 | **B1** | |
| **(b)** | 29, 31 | **B1** | |
| **(c)** | −4, 4 | **B1** | |
| | | | **[3]** |

2

**(a)** 3023 is a prime number.

Write down the factors of 3023.

*Answer(a)* ..... [1]

**(b)** $p$ and $q$ are prime numbers.

**(i)** Write down the highest common factor (HCF) of $p$ and $q$.

*Answer(b)*(i) ..... [1]

**(ii)** Write down an expression, in terms of $p$ and $q$, for the lowest common multiple (LCM) of $p$ and $q$.

*Answer(b)*(ii) ..... [1]

MS-2

| | | | |
|---|---|---|---|
| **(a)** | 1, 3023 | **1** | |
| **(b) (i)** | 1 | **1** | |
| **(ii)** | $pq$ | **1** | |

3

Here is a list of numbers.

21 23 29 33 39 63 91 92

From the list, write down

**(a)** a factor of 46, ..... [1]

**(b)** a prime number. ..... [1]

MS-3

| | | | |
|---|---|---|---|
| (a) | 23 | **1** | |
| (b) | 23 or 29 | **1** | Allow both but no extras |

4

Find the highest common factor (HCF) in each list.

**(a)** 24 56 72

*Answer(a)* ..... [1]

**(b)** $x^3y^4$ $x^2y^5$ $x^4y^2$

*Answer(b)* ..... [2]

MS-4

| | | | |
|---|---|---|---|
| **(a)** | 8 | **1** | |
| **(b)** | $x^2y^2$ | **2** | **B1** for 1 correct term |

5

$a = 3^4 \times 5^2$ $b = 2^2 \times 3^3 \times 5^2$ $c = 3^2 \times 5^3 \times 7$

**(a)** Find

**(i)** $\sqrt{a}$,

*Answer(a)*(i) ..... [1]

**(ii)** $\frac{b}{a}$.

*Answer(a)*(ii) ..... [1]

**(b)** Leaving your answer as the product of prime factors, find

**(i)** the highest common factor (HCF) of $a$, $b$ and $c$,

*Answer(b)*(i) ..... [1]

**(ii)** the lowest common multiple (LCM) of $a$, $b$ and $c$.

*Answer(b)*(ii) ..... [2]

MS-5

| | | | |
|---|---|---|---|
| **(a) (i)** | 45 | **1** | Accept in factor form |
| **(ii)** | $\frac{4}{3}$ | **1** | Accept $\frac{2^2}{3}$ |
| **(b) (i)** | $3^2 \times 5^2$ | **1** | |
| **(ii)** | $2^2 \times 3^3 \times 5^3 \times 7$ | **2** | **B1** for 3 of 4 factors or **B1** for 94 500 |

6

$a = 2^3 \times 3 \times 5^2$ $\quad$ $b = 2^2 \times 3^2 \times 7^6$

**(a)** Find, giving each answer as the product of prime factors,

**(i)** the highest common factor (HCF) of $a$ and $b$,

*Answer(a)*(i) ..... [1]

**(ii)** $\sqrt{b}$.

*Answer(a)*(ii) ..... [1]

**(b)** $ap$ is a cube number.

Find the smallest integer value of $p$.

*Answer(b)* ..... [1]

MS-6

| | | | |
|---|---|---|---|
| **(a) (i)** | $2^2 \times 3$ | **1** | |
| **(ii)** | $2 \times 3 \times 7^3$ | **1** | |
| **(b)** | 45 | **1** | |

7

Find the highest common factor (HCF) of 96 and 60.

..... [1]

MS-7

| | | | |
|---|---|---|---|
| | 12 | **1** | |

8

Find the highest common factor (HCF) of $8p^4q^8$ and $4p^3q^{10}$.

..... [2]

MS-8

| | | | |
|---|---|---|---|
| | $4p^3q^8$ | **2** | **B1** for $kp^3q^8$ or $4p^kq^8$ or $4p^3q^k$ |

9

**(a)** 3023 is a prime number.

Write down the factors of 3023.

*Answer(a)* ..... [1]

**(b)** $p$ and $q$ are prime numbers.

**(i)** Write down the highest common factor (HCF) of $p$ and $q$.

*Answer(b)*(i) ..... [1]

**(ii)** Write down an expression, in terms of $p$ and $q$, for the lowest common multiple (LCM) of $p$ and $q$.

*Answer(b)*(ii) ..... [1]

MS-9

| | | | |
|---|---|---|---|
| **(a)** | 1, 3023 | **1** | |
| **(b)** **(i)** | 1 | **1** | |
| **(ii)** | $pq$ | **1** | |

| | |
|---|---|
| 10 | Find the highest common factor (HCF) of 60 and 90.<br><br>*Answer* ..... [1] |
| MS-10 | 30 **1** |
| | |
| 11 | Written as the product of their prime factors,<br>$7056 = 2^4 \times 3^2 \times 7^2$ and $8232 = 2^3 \times 3 \times 7^3$.<br>Giving your answers as the product of prime factors, find<br>**(a)** the highest common factor (HCF) of 7056 and 8232,<br>..... [1]<br>**(b)** the lowest common multiple (LCM) of 7056 and 8232,<br>..... [1]<br>**(c)** $\sqrt{7056}$.<br>..... [1] |
| MS-11 | (a) $2^3 \times 3^{[1]} \times 7^2$ isw **1**<br>(b) $2^4 \times 3^2 \times 7^3$ isw **1**<br>(c) $2^2 \times 3^{[1]} \times 7^{[1]}$ isw **1** |
| | |