Multiples and Factors

Activity-1

1. To find multiples of a number, we multiply it by 1, 2, 3, 4 ..... and so on.

(a) $4 \times 1 = 4$, $4 \times 2 = 8$, $4 \times 3 = 12$, $4 \times 4 = 16$, $4 \times 5 = 20$

So,the first five multiples of 4 are 4, 8, 12, 16, 20.

(b) The first five multiples of 7 are

7×1, 7×2, 7×3, 7×4, 7×5 or 7, 14, 21, 28, 35.

(c) The first five multiples of 10 are

10×1, 10×2, 10×3, 10×4, 10×5 or 10, 20, 30, 40, 50.

(d) The first five multiples of 12 are

12×1, 12×2, 12×3, 12×4, 12×5 or 12, 24, 36, 48, 60.

(e) The first five multiples of 15 are

15×1, 15×2, 15×3, 15×4, 15×5 or 15, 30, 45, 60, 75.

(f) The first five multiples of 18 are

18×1, 18×2, 18×3, 18×4, 18×5 or 18, 36, 54, 72, 90.

(g) The first five multiples of 20 are

20×1, 20×2, 20×3, 20×4, 20×5 or 20, 40, 60, 80, 100.

(h) The first five multiples of 23 are

23×1, 23×2, 23×3, 23×4, 23×5 or 23, 46, 69, 92, 115.

(i) The first five multiples of 26 are

26×1, 26×2, 26×3, 26×4, 26×5 or 26, 52, 78, 104, 130.

(j) The first five multiples of 29 are

29×1, 29×2, 29×3, 29×4, 29×5 or 29, 58, 87, 116, 145.

(k) The first five multiples of 33 are

33×1, 33×2, 33×3, 33×4, 33×5 or 33, 66, 99, 132, 165.

(l) The first five multiples of 35 are

35×1, 35×2, 35×3, 35×4, 35×5 or 35, 70, 105, 140, 175.

2. (a) Let us divide 28 by 5.

5 does not divide 28 exactly.

Thus, 28 is not a multiple of 5.

$$\begin{array}{r} 5 \\ 5\overline{)\,28} \\ -25 \\ \hline 3 \end{array}$$

(b) Let us divide 36 by 9.

9 divides 36 exactly, leaving no remainder.

Thus,36 is a multiple of 9.

$$\begin{array}{r} 4 \\ 9\overline{)\,36} \\ -36 \\ \hline 0 \end{array}$$

(c) 8 divides 64 exactly, leaving no remainder.

Thus,64 is a multiple of 8.

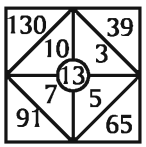
$$\begin{array}{r} 8 \\ 8\overline{)\,64} \\ -64 \\ \hline 0 \end{array}$$

(d) 7 divides 182 exactly, leaving no remainder.

Thus,182 is a multiple of 7.

$$\begin{array}{r} 26 \\ 7\overline{)\,182} \\ -14 \\ \hline 42 \\ -42 \\ \hline 0 \end{array}$$

3.



5	4	3	2	1
10	8	6	4	2
15	12	9	6	3
20	16	12	8	4
25	20	15	10	5

4. 54, 18, 27, 36 and 63 are multiples of 9.

Activity-2

1. (a) First 10 multiples of 2 are 2, 4, (6), 8, 10, (12), 14, 16, (18), 20.

First 10 multiples of 3 are 3, (6), 9, (12), 15, (18), 21, 24, 27, 30.

Common multiples of 2 and 3 are 6, 12 and 18.

Lowest common multiple (LCM) of 2 and 3 is 6.

(b) First 10 multiples of 4 are 4, 8, 12, 16, (20), 24, 28, 32, 36, (40).

First 10 multiples of 5 are 5, 10, 15, (20), 25, 30, 35, (40), 45, 50.

Common multiples of 4 and 5 are 20 and 40.

Lowest common multiple (LCM) of 4 and 5 is 20.

(c) First 10 multiples of 8 are 8, 16, 24, 32, (40), 48, 56, 64, 72, (80).
First 10 multiples of 10 are 10, 20, 30, (40), 50, 60, 70, (80), 90, 100.
Common multiples are 40 and 80.
$\therefore$ LCM = 40.

(d) First 10 multiples of 9 are 9, 18, 27, (36), 45, 54, 63, (72), 81, 90.
First 10 multiples of 12 are 12, 24, (36), 48, 60, (72), 84, 96, 108, 120.
Common multiples are 36 and 72.
$\therefore$ LCM = 36.

(e) First 10 multiples of 3 are 3, 6, (9), 12, 15, (18), 21, 24, (27), 30.
First 10 multiples of 9 are (9), (18), (27), 36, 45, 54, 63, 72, 81, 90.
Common multiples are 9, 18 and 27.
$\therefore$ LCM = 9.

(f) First 10 multiples of 10 are 10, (20), 30, (40), 50, (60), 70, (80), 90, (100).
First 10 multiples of 20 are (20), (40), (60), (80), (100), 120, 140, 160, 180, 200.
Common multiples are 20, 40, 60, 80, and 100.
$\therefore$ LCM = 20.

(g) First 10 multiples of 15 are 15, 30, 45, (60), 75, 90, 105, (120), 135, 150.
First 10 multiples of 20 are 20, 40, (60), 80, 100, (120), 140, 160, 180, 200.
Common multiples are 60 and 120.
$\therefore$ LCM = 60.

(h) First 10 multiples of 15 are 15, 30, 45, 60, 75, (90), 105, 120, 135, 150.
First 10 multiples of 18 are 18, 36, 54, 72, (90), 108, 126, 144, 162, 180.
Common multiple is 90.
Also, LCM = 90.

2. Multiples of 12 are 12, 24, 36, 48, (60), 72, 84, 96, 108, (120).
Multiples of 15 are 15, 30, 45, (60), 75, 90, 105, (120), 135, 150.
Multiples of 20 are 20, 40, (60), 80, 100, (120), 140, 160, 180, 200.
Common multiples of 12, 15 and 20 are 60 and 120.
$\therefore$ LCM = 60.

3. Multiples of 14 are 14, 28, (42), 56, 70, (84), 98, 112, (126), 140.

   Multiples of 21 are 21, (42), 63, (84), 105, (126), 147, 168, 189, 210.

   Common multiples are 42, 84 and 126.

   $\therefore$ LCM = 42.

4. 3rd common multiple of 6 and 15 = $30 \times 3 = 90$

   4th common multiple of 6 and 15 = $30 \times 4 = 120$

   5th common multiple of 6 and 15 = $30 \times 5 = 150$.

5. LCM of 2 and 5 = 10

   So, the next 5 common multiples of 2 and 5 are

   $10 \times 2, 10 \times 3, 10 \times 4, 10 \times 5, 10 \times 6$ i.e. 20, 30, 40, 50 and 60.

6. **(a)** 6, 12, 18, 24, 30, 36, 42, 48, 54, 60, 66, 72

   (b) 9, 18, 27, 36, 45, 54, 63, 72, 81

   (c) 18, 36, 54, 72

   (d) Lowest common multiple is 18.

   $\therefore$ LCM of 6 and 9 = 18.

Activity-3

1. **(a)** The possible combinations of 15 are

   $15 = 1 \times 15$, $15 = 3 \times 5$, $15 = 5 \times 3$, $15 = 15 \times 1$

   Thus,factors of 15 are 1, 3, 5 and 15.

   (b) $20 = 1 \times 20$, $20 = 2 \times 10$, $20 = 4 \times 5$, $20 = 5 \times 4$,

   $20 = 10 \times 2$, $20 = 20 \times 1$

   Thus,factors of 20 are 1, 2, 4, 5, 10 and 20.

   (c) $24 = 1 \times 24$, $24 = 2 \times 12$, $24 = 3 \times 8$, $24 = 4 \times 6$,

   $24 = 6 \times 4$, $24 = 8 \times 3$, $24 = 12 \times 2$, $24 = 24 \times 1$

   Thus,factors of 24 are 1, 2, 3, 4, 6, 8, 12 and 24.

   (d) $28 = 1 \times 28$, $28 = 2 \times 14$, $28 = 4 \times 7$, $28 = 7 \times 4$,

   $28 = 14 \times 2$, $28 = 28 \times 1$

   Thus,factors of 28 are 1, 2, 4, 7, 14 and 28.

(e) $32 = 1 \times 32$, $32 = 2 \times 16$, $32 = 4 \times 8$, $32 = 8 \times 4$,
$32 = 16 \times 2$, $32 = 32 \times 1$

Thus,factors of 32 are 1, 2, 4, 8, 16 and 32.

(f) $45 = 1 \times 45$, $45 = 3 \times 15$, $45 = 5 \times 9$, $45 = 9 \times 5$,
$45 = 15 \times 3$, $45 = 45 \times 1$

Thus,factors of 45 are 1, 3, 5, 9, 15 and 45.

2. (a) $12 \div 1 = 12$, $12 \div 2 = 6$, $12 \div 3 = 4$, $12 \div 4 = 3$

We do not divide further as 3 is also a factor of 12.

Thus,factors of 12 are 1, 2, 3, 4, 6 and 12.

(b) $18 \div 1 = 18$, $18 \div 2 = 9$, $18 \div 3 = 6$,
$18 \div 4 = 4 + 2$ remainder, $18 \div 5 = 3 + 3$ remainder,
$18 \div 6 = 3$

Thus,factors of 18 are 1, 2, 3, 6, 9 and 18.

(c) $36 \div 1 = 36$, $36 \div 2 = 18$, $36 \div 3 = 12$, $36 \div 4 = 9$,
$36 \div 5 = 7 + 1$ remainder, $36 \div 6 = 6$,
$36 \div 7 = 5 + 1$ remainder, $36 \div 8 = 4 + 4$ remainder,
$36 \div 9 = 4$

Thus,factors of 36 are 1, 2, 3, 4, 6, 9, 12, 18 and 36.

(d) $54 \div 1 = 54$, $54 \div 2 = 27$, $54 \div 3 = 18$,
$54 \div 4 = 13 + 2$ remainder, $54 \div 5 = 10 + 4$ remainder,
$54 \div 6 = 9$, $54 \div 7 = 7 + 5$ remainder,
$54 \div 8 = 6 + 6$ remainder, $54 \div 9 = 6$

Thus,factors of 54 are 1, 2, 3, 6, 9, 18, 27 and 54.

(e) $63 \div 1 = 63$, $63 \div 2 = 31 + 1$ remainder,
$63 \div 3 = 21$, $63 \div 4 = 15 + 3$ remainder,
$63 \div 5 = 12 + 3$ remainder, $63 \div 6 = 10 + 3$ remainder,
$63 \div 7 = 9$, $63 \div 8 = 7 + 7$ remainder,
$63 \div 9 = 7$

Thus,factors of 63 are 1, 3, 7, 9, 21 and 63.

(f) $81 \div 1 = 81$, $81 \div 2 = 40 + 1$ remainder,
$81 \div 3 = 27$, $81 \div 4 = 20 + 1$ remainder,
$81 \div 5 = 16 + 1$ remainder, $81 \div 6 = 13 + 3$ remainder,
$81 \div 7 = 11 + 4$ remainder, $81 \div 8 = 10 + 1$ remainder,
$81 \div 9 = 9$

Thus,factors of 81 are 1, 3, 9, 27 and 81.

3. (a) True, 48 is exactly divided by 4 leaving no remainder.

(b) False, 0 is not a factor of any number, because division by zero is not possible.

(c) True, Any number go into itself once.

(d) False, 65 is not exactly divisible by 8.

(e) True, 1 divides every number i.e. 1 is a divisor of every number.

(f) False, 5 is a factor of 45.

4. (a) Factors of 4 are ①,②, 4.
Factors of 10 are ①,②, 5, 10.
Common factors are 1 and 2.

(b) Factors of 9 are ①, ③,⑨.
Factors of 27 are ①, ③,⑨, 27.
Common factors are 1, 3 and 9.

(c) Factors of 12 are ①,②③,④, 6, 12.
Factors of 20 are ①,②,④, 5, 10, 20.
Common factors are 1, 2 and 4.

(d) Factors of 24 are ①, 2,③, 4, 6, 8, 12, 24.
Factors of 33 are ①,③, 11, 33.
Common factors are 1 and 3.

(e) Factors of 45 are ①,③,⑤, 9,⑮, 45.
Factors of 60 are ①, 2,③, 4,⑤, 6, 10, 12,⑮, 20, 30, 60.
Common factors are 1, 3, 5 and 15.

(f) Factors of 12 are ①, ②, ③, 4, ⑥, 12.
Factors of 18 are ①, ②, ③, ⑥, 9, 18.
Common factors are 1, 2, 3 and 6.

5. (a) Factors of 4 are ①, ②, 4.
Factors of 6 are ①, ②, 3, 6.
Common factors are 1 and 2.
∴ HCF = 2.

(b) Factors of 9 are ①, ③, 9.
Factors of 15 are ①, ③, 5, 15.
Common factors are 1 and 3.
∴ HCF = 3.

(c) Factors of 30 are ①, ②, 3, ⑤, 6, ⑩, 15, 30.
Factors of 40 are ①, ②, 4, ⑤, 8, ⑩, 20, 40.
Common factors are 1, 2, 5 and 10.
∴ HCF = 10.

(d) Factors of 16 are ①, ②, ④, 8, 16.
Factors of 20 are ①, ②, ④, 5, 10, 20.
Common factors are 1, 2 and 4.
∴ HCF = 4.

(e) Factors of 6 are ①, ②, ③, ⑥.
Factors of 12 are ①, ②, ③, 4, ⑥, 12.
Common factors are 1, 2, 3 and 6.
∴ HCF = 6.

(f) Factors of 25 are ①, ⑤, 25.
Factors of 45 are ①, 3, ⑤, 9, 15, 45.
Common factors are 1 and 5.
∴ HCF = 5.

6. (a) Factors of 9 are ①, ③, 9.
Factors of 12 are ①, 2, ③, 4, 6, 12.
Common factors are 1 and 3. ∴ HCF = 3.
The numbers, with their HCF 1, are called co-prime numbers.
So, 9 and 12 are not co-prime numbers.

(b) Factors of 3 are ①, 3.

Factors of 8 are ①, 2 , 4 , 8.

Common factors is 1.

∴ HCF = 1

So,3 and 8 are co-prime numbers.

(c) 3 is a factor of 15.

So, HCF of 3 and 15 = 3

So,3 and 15 are not co-prime numbers.

Activity-4

1. (a) Factors of 5 are 1 and 5.
As there are only two factors, 1 and the number itself.
Hence,5 is a prime number.

(b) Factors of 12 are 1, 2, 3, 4, 6 and 12.
As there are more than 2 factors, so, 12 is a composite number.

(c) Factors of 15 are 1, 3, 5 and 15.
As there are more than 2 factors, so, 15 is a composite number.

(d) Factors of 27 are 1, 3, 9 and 27.
As there are more than 2 factors, so, 27 is a composite number.

(e) Factors of 31 are 1 and 31.
As there are only two factors, so, 31 is a prime number.

(f) Factors of 39 are 1, 3, 13, 39.
As there are more than two factors, so, 39 is a composite number.

(g) Factors of 52 are 1, 2, 4, 13, 26, 52.
As there are more than two factors, so, 52 is a composite number.

(h) Factors of 60 are 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60.
∴ 60 is a composite number.

(i) Factors of 67 are 1 and 67.
As there are only two factors, so, 67 is a prime number.

(j) Factors of 89 are 1 and 89.
As there are only two factors, so, 89 is a prime number.

(k) Factors of 95 are 1, 5, 19 and 95.
∴ 95 is a composite number.

(l) Factors of 99 are 1, 3, 9, 11, 33, 99.
∴ 99 is a composite number.

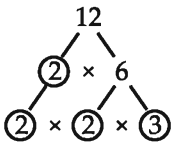
2. Prime numbers between 75 and 100 are 79, 83, 89 and 97.

3. **(a)** Prime numbers between 1 and 60 are
2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53 and 59.

(b) 3 and 5, 5 and 7, 11 and 13, 17 and 19, 29 and 31, 41 and 43.
These are prime numbers with a composite number between them.

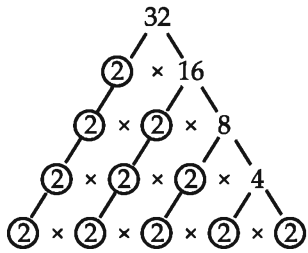
Activity-5

1.



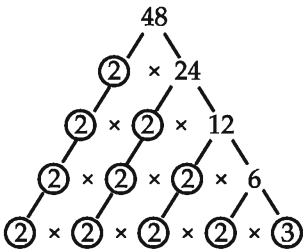
$\therefore 12 = 2 \times 2 \times 3$

2.



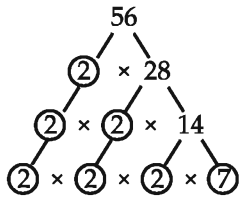
$\therefore 32 = 2 \times 2 \times 2 \times 2 \times 2$

3.



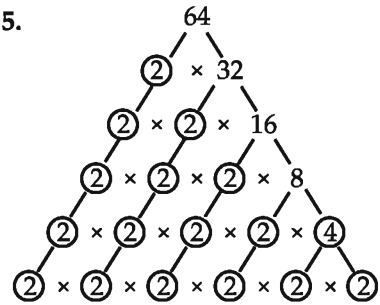
$\therefore 48 = 2 \times 2 \times 2 \times 2 \times 3$

4.



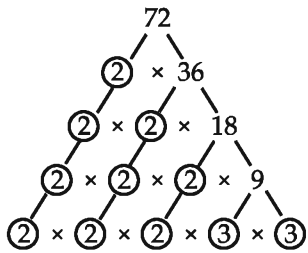
$\therefore 56 = 2 \times 2 \times 2 \times 7$

5.



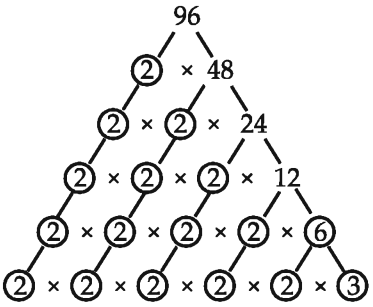
$\therefore 64 = 2 \times 2 \times 2 \times 2 \times 2 \times 2$

6.



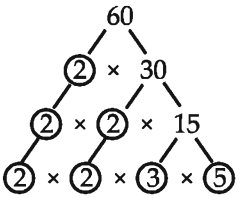
$\therefore 72 = 2 \times 2 \times 2 \times 3 \times 3$

7.



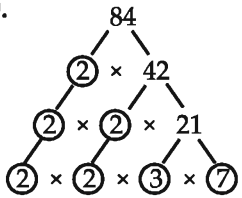
$\therefore 96 = 2 \times 2 \times 2 \times 2 \times 2 \times 3$

8.



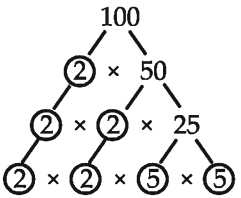
$\therefore \quad 60 = 2 \times 2 \times 3 \times 5$

9.



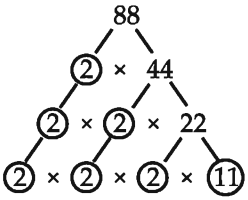
$\therefore 84 = 2 \times 2 \times 3 \times 7$

10.



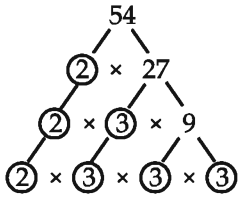
$\therefore \quad 100 = 2 \times 2 \times 5 \times 5$

11.



$\therefore \quad 88 = 2 \times 2 \times 2 \times 11$

12.



$\therefore \quad 54 = 2 \times 3 \times 3 \times 3$

Activity-6

1. Numbers 428, 138, 3456 and 4838 are divisible by 2, because a number is divisible by 2 if it is an even number.

2. A number is divisible by 5 if the digit at ones place is either 0 or 5.
   So, numbers 230, 425, 1720 and 635 are divisible by 5.

3. A number is divisible by 10 if the digit at ones place is 0.
   So, 110, 1450, 4660 and 2220 are divisible by 10.

4. **(a)** Sum of the digits of $39 = 3 + 9 = 12$.
   As 12 is divisible by 3, therefore, 39 is also divisible by 3.

   (b) Sum of the digits of $73 = 7 + 3 = 10$.

As 10 is not divisible by 3, therefore, 73 is also not divisible by 3.

(c) Sum of the digits of $282 = 2 + 8 + 2 = 12$.
12 is divisible by 3, so, 282 is also divisible by 3.

(d) Sum of the digits of $866 = 8 + 6 + 6 = 20$.
20 is not divisible by 3, so, 866 is also not divisible by 3.

(e) Sum of the digits of $4284 = 4 + 2 + 8 + 4 = 18$.
18 is divisible by 3, so, 4284 is also divisible by 3.

5. A number is divisible by 6 if it is divisible by both 2 and 3.

(a) 426 has 6 at its ones place, so, it is divisible by 2.
Sum of the digits of $426 = 4 + 2 + 6 = 12$
12 is divisible by 3, so, 426 is also divisible by 3.
Hence, 426 is divisible by 6.

(b) 517 is not divisible by 2.
Hence, it is also not divisible by 6.

(c) 732 has 2 at its ones place, so, it is divisible by 2.
Sum of the digits of $732 = 7 + 3 + 2 = 12$ (divisible by 3)
$\therefore$ 732 is divisible by 3.
Hence, 732 is divisible by 6.

(d) 1382 has 2 at its ones place, so, it is divisible by 2.
Sum of the digits of $1382 = 1 + 3 + 8 + 2 = 14$ (not divisible by 3)
$\therefore$ 1382 is also not divisible by 3.
Hence, 1382 is not divisible by 6.

(e) 3826 has 6 at its ones place, so, it is divisible by 2.
Sum of the digits of $3826 = 3 + 8 + 2 + 6 = 19$ (not divisible by 3)
$\therefore$ 3826 is not divisible by 3.
Hence, 3826 is also not divisible by 6.

6. A number is divisible by 9 if the sum of all the digits is divisible by 9.

(a) Sum of the digits of $216 = 2 + 1 + 6 = 9$ (divisible by 9)
$\therefore$ 216 is divisible by 9.

(b) Sum of the digits of $845 = 8 + 4 + 5 = 17$ (not divisible by 9)
$\therefore$ 845 is also not divisible by 9.

(c) Sum of the digits of $1872 = 1 + 8 + 7 + 2 = 18$ (divisible by 9)
$\therefore$ 1872 is also divisible by 9.

(d) Sum of the digits of $3006 = 3 + 0 + 0 + 6 = 9$ (divisible by 9)
$\therefore$ 3006 is also divisible by 9.

(e) Sum of the digits of 6715 = 6 + 7 + 1 + 5 = 19 (not divisible by 9)
∴ 6715 is also not divisible by 9.

7. A number is divisible by 9 if the sum of all the digits is divisible by 9.

(a) Sum of the digits is 7 + 3 = 10.
If we write (18 – 10 = 8) in the missing place, then the number formed is 738.
Now, 7 + 3 + 8 = 18 (divisible by 9).

(b) If we write 2 in the box, the number so formed is 6201.
Sum of the digits of 6201 = 6 + 2 + 0 + 1 = 9 (divisible by 9).

(c) If we write 0 or 9 in the box, the number so formed is 4203 or 4293.
Sum of the digits of 4203 = 4 + 2 + 0 + 3 = 9 (divisible by 9)
Sum of the digits of 4293 = 4 + 2 + 9 + 3 = 18 (divisible by 9)

(d) If we write 9 in the box, the number so formed is 9999.
Sum of the digits of 9999 = 9 + 9 + 9 + 9 = 36 (divisible by 9)

Mental Maths Corner

1. **(a)** (iv) **(b)** (iv) **(c)** (iii) **(d)** (iv) **(e)** (iii) **(f)** (i)

2. **(a)** 2 **(b)** 97 **(c)** twin prime numbers
(d) composite **(e)** 25

3. **(a)** True **(b)** False **(c)** True **(d)** False **(e)** False **(f)** True

Review Exercise

1. **(a)** Multiples of 3 are 3, 6, 9, 12, (15), 18, 21, 24, 27, (30).
Multiples of 5 are 5, 10, (15), 20, 25, (30), 35, 40, 45, 50.
Common multiples are 15 and 30.
∴ LCM = 15
∴ The first six common multiples of 3 and 5 are
15 × 1, 15 × 2, 15 × 3, 15 × 4, 15 × 5, 15 × 6 i.e. 15, 30, 45, 60, 75, 90.

(b) Multiples of 9 are 9, 18, 27, 36, (45), 54, 63, 72, (81), (90).
Multiples of 15 are 15, 30, (45), 60, 75, (90), 105, 120, 135, 150.
Common multiples are 45 and 90.
∴ LCM = 45
∴ The first six common multiples of 9 and 15 are
45 × 1, 45 × 2, 45 × 3, 45 × 4, 45 × 5, 45 × 6 i.e. 45, 90, 135, 180, 225, 270.

(c) Multiples of 12 are 12, 24, 36, 48, (60), 72, 84, 96, 108, (120).
Multiples of 20 are 20, 40, (60), 80, 100, (120), 140, 160, 180, 200.
Common multiples are 60 and 120.
$\therefore$ LCM = 60
$\therefore$ The first six common multiples of 12 and 20 are
$60 \times 1, 60 \times 2, 60 \times 3, 60 \times 4, 60 \times 5, 60 \times 6$ i.e. 60, 120, 180, 240, 300, 360.

2. Multiples of 18 are 18, 36, 54, 72, 90, 108, 126, 144, 162, 180, 198, 216, 234, 252, 270, 288, 306, 324, 342, (360).
Multiples of 24 are 24, 48, 72, 96, 120, 144, 168, 192, 216, 240, 264, 288, 312, 336, (360).
Multiples of 30 are 30, 60, 90, 120, 150, 180, 210, 240, 270, 300, 330, (360).
Lowest common multiple of 18, 24 and 30 is 360.
$\therefore$ LCM = 360.

3. (a) $48 = 1 \times 48, 48 = 2 \times 24, 48 = 3 \times 16, 48 = 4 \times 12, 48 = 6 \times 8,$
$48 = 8 \times 6, 48 = 12 \times 4, 48 = 16 \times 3, 48 = 24 \times 2, 48 = 48 \times 1.$
Factors of 48 are 1, 2, 3, 4, 6, 8, 12, 16, 24 and 48.

(b) $75 = 1 \times 75$, $75 = 3 \times 25$, $75 = 5 \times 15$,
$75 = 15 \times 5$, $75 = 25 \times 3$, $75 = 75 \times 1$.
Factors of 75 are 1, 3, 5, 15, 25 and 75.

4. (a) Factors of 24 are (1), (2), (3), 4, (6), 8, 12, 24.
Factors of 30 are (1), (2), (3), 5, (6), 10, 15, 30.
Common factors are 1, 2, 3 and 6.

(b) Factors of 42 are (1), (2), (3), (6), 7, 14, 21, 42.
Factors of 60 are (1), (2), (3), 4, 5, (6), 10, 12, 15, 20, 30, 60.
Common factors are 1, 2, 3 and 6.

(c) Factors of 15 are (1), (3), (5), (15).
Factors of 45 are (1), (3), (5), 9, (15), 45.
Common factors are 1, 3, 5 and 15.

5. (a) Factors of 20 are (1), 2, 4, (5), 10, 20.
Factors of 35 are (1), (5), 7, 35.

Factors of 45 are ①, 3, ⑤, 9, 15, 45.

Common factors are 1 and 5.

$\therefore$ HCF = 5.

(b) Factors of 22 are ①, 2, ⑪, 22.

Factors of 33 are ①, 3, ⑪, 33.

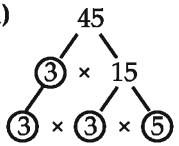
Factors of 77 are ①, 7, ⑪, 77.

Common factors are 1 and 11.

$\therefore$ HCF = 11

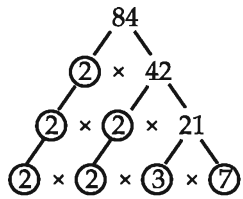
6. The numbers 5,17,53 and 67 have only 2 factors, that is, 1 and the number itself, so, they are prime numbers.

7. (a)



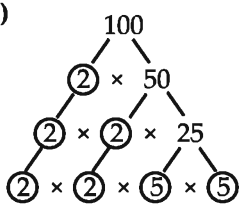
$45 = 3 \times 3 \times 5$

(b)



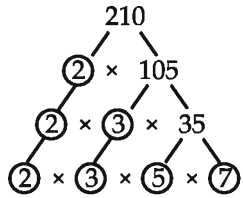
$84 = 2 \times 2 \times 3 \times 7$

(c)



$100 = 2 \times 2 \times 5 \times 5$

(d)



$210 = 2 \times 3 \times 5 \times 7$

8. (a) Divisibility by 3 :

Sum of the digits of 48 $= 4 + 8 = 12$ (divisible by 3).

$\therefore$ 48 is divisible by 3.

Divisibility by 6 :

48 has 8 at its ones place, so, it is divisible by 2.

It is also divisible by 3.

So,it is divisible by 6.

Divisibility by 9 :

Sum of the digits of $48 = 4 + 8 = 12$ (not divisible by 9)

So,48 is also not divisible by 9.

Divisibility by 10 :
48 has 8 at its ones place.
So,it is not divisible by 10.

(b) Divisibility by 3 :
Sum of the digits of 72 = 7 + 2 = 9 (divisible by 3)
So,72 is also divisible by 3.

Divisibility by 6 :
72 has 2 at its ones place, so, it is divisible by 2.
72 is also divisible by 3.
So,it is also divisible by 6.

Divisibility by 9 :
Sum of the digits of 72 = 9 (divisible by 9)
So,it is divisible by 9.

Divisibility by 10 :
72 has 2 at its ones place, so, it is not divisible by 10.

(c) Divisibility by 3 :
Sum of the digits of 125 = 1 + 2 + 5 = 8 (not divisible by 3)
$\therefore$ 125 is also not divisible by 3.

Divisibility by 6 :
125 is not divisible by 6 because it is not divisible by 3.

Divisibility by 9 :
125 is not divisible by 9 as it is not divisible by 3 (sum of the digits is 8).

Divisibility by 10 :
125 has 5 at its ones place, so, it is not divisible by 10.

(d) Divisibility by 3 :
Sum of the digits of 150 = 1 + 5 + 0 = 6 (divisible by 3)
So,150 is also divisible by 3.

Divisibility by 6 :
150 has 0 at its ones place, so, it is divisible by 2.
It is also divisible by 3, so, it is divisible by 6 also.

Divisibility by 9 :
Sum of the digits of 150 = 6 (not divisible by 9)
So,150 is also not divisible by 9.

Divisibility by 10 :
150 has 0 at its ones place, so, it is divisible by 10.

(e) Divisibility by 3 :
Sum of the digits of 252 = 2 + 5 + 2 = 9 (divisible by 3)

So,252 is also divisible by 3.

Divisibility by 6 :
252 has 2 at its ones place, so, it is divisible by 2.
It is divisible by 3 also.
Therefore,252 is also divisible by 6.

Divisibility by 9 :
Sum of the digits of 252 = 9 (divisible by 9).
So,252 is also divisible by 9.

Divisibility by 10 :
252 has 2 at its ones place, so, it is not divisible by 10.

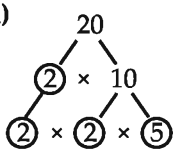
9. **(a)** Fourth multiple of 12 is = 12 × 4 = 48.

(b) Multiples of 7 till 77 = 7, 14, 21, 28, 35, 42, 49, 56, 63, 70, 77

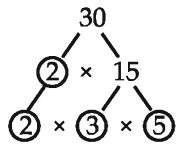
(c) 39, 52, 65, 78, 91

(d) Prime numbers between 21 and 30 are 23 and 29.

10. **(a)**



(b)



HOTS

1000 = **47** × 14 + **19** × 18, 1000 = 658 + 342

So, 658 and 342 are two numbers such that one is a multiple of 47 and the other a multiple of 19 and whose sum is 1000.

Maths Lab Activity

- LCM of 5 and 7 = 35

(a) LCM of 7 and 9 = 63

(b) LCM of 5 and 8 = 40

(c) LCM of 2 and 9 = 18