Chapter-2 Playing With Numbers

Exercise 2.1

Q.1 Define (i) factor (ii) Multiple

Sol factor: A factor of a number is exact divisor of that number.

Multiple: A multiple of a number is a number obtained by multiplying it by a natural number.

Q.2 Write all factors of each of the following.

(i) 60 (ii) 76 (iii) 125 (iv) 729

Solution (i) factors of 60 are 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60

(ii) factors of 76: 1, 2, 4, 19, 38, 76

(iii) factors of 125: 1, 5, 25, 125

(iv) factors of 729: 1, 3, 9, 27, 81, 243, 729

Q.3 Write first five Multiples of each of the following numbers.

(i) 25 (ii) 35 (iii) 45 (iv) 40

Solution: (i) Multiples of 25: 25, 50, 75, 100, 125

(ii) Multiples of 35: $35\times1, 35\times2, 35\times3, 35\times4, 35\times5$

$= 35, 70, 105, 140, 175$

(iii) Multiples of 45 : $45\times1, 45\times2, 45\times3, 45\times4, 45\times5$

$= 45, 90, 135, 180, 225$

(iv) Multiples of 40 : $40\times1, 40\times2, 40\times3, 40\times4, 40\times5$

$= 40, 80, 120, 160, 200$

Q4 which of the following numbers have 15 as their factor.

(i) 15625 (ii) 123015

Sol: A number is a factor of a number if it divides that number exactly. so

(i)
$$\begin{array}{r|l} & 1041 \\ \hline 15 & 15625 \\ & -15 \\ \hline & 062 \\ & -60 \\ \hline & 25 \\ & 15 \\ \hline & 10 \end{array}$$

since 15625 is not completely divisible by 15.

∴ 15 is not a factor of 15625

(ii)
$$\begin{array}{r|l} & 8201 \\ \hline 15 & 123015 \\ & 120 \\ \hline & 30 \\ & -30 \\ \hline & 15 \\ & 15 \\ \hline & 0 \end{array}$$

In this case remainder is zero

so, 15 is a factor of 123015

aglasem

Q.5 which of the following numbers are divisible by 21.

(i) 21063 (ii) 20163

Solution (i)

$$
\begin{array}{r}
1003 \\
21 \overline{)\,21063} \\
-21 \\
\hline
063 \\
-63 \\
\hline
0
\end{array}
$$

∴ 21063 is divisible by 21.

(ii)

$$
\begin{array}{r}
960.1 \\
21 \overline{)\,20163} \\
-189 \\
\hline
126 \\
-126 \\
\hline
30 \\
21 \\
\hline
9
\end{array}
$$

∴ It is not divisible by 21.

Q.6 without actually division show that 11 is a factor of each of the following numbers.

(a) 1111 (b) 11011 (c) 110011 (d) 1100011

Sol: (i) $1111 = 1100 + 11$

$= (11 \times 100) + (11 \times 1)$

$= 11\,(100 + 1)$

$= 11 \times 101$

∴ 11 is a factor of 1111

(b) $11011 = 11000 + 11$

$= 11 \times 1000 + 11 \times 1$

$= 11(1000+1)$

$= 11 \times 1001$

$\therefore$ 11 is a factor of 11011

(c) $110011 = 1,10,000 + 11$

$= 11 \times 10000 + 11 \times 1$

$= 11(10000+1) = 11 \times 10001$

$\therefore$ Clearly 11 is a factor of 110011

(d) $1100011 = 1100000 + 11$

$= 11 \times 100000 + 11 \times 1$

$= 11(100000+1) = 11 \times 100001$

$\therefore$ Clearly 11 is a factor of 1100011

Q.7 Without actual division show that each of the following numbers is divisible by 5.

(i) 55 (ii) 555 (iii) 5555 (iv) 50005

Solution: As per divisibility rule a number ending with 0 or 5 always divisible by 5.

so by using this 55, 555, 5555 and 50005 are divisible by 5.

Q8 Is there any natural number having no factor at all.

Sol: NO, All natural numbers are factors of itself.

Q.9 Find numbers between 1 and 100 having exactly three factors.

Solution: factors of 4 are 1, 2, 4
factors of 9 are 1, 3 and 9
factors of 25 are 1, 5 and 25
factors of 49 are 1, 7 and 49

Q.10 Sort out even or odd numbers.

(i) 42 (ii) 89 (iii) 144 (iv) 321

Sol: (i) 42 — even as one's digit divisible by 2.

(ii) 89 — odd as one's digit not divisible by 2

(iii) 144 — even as one's digit is divisible by 2.

(iv) 321 — odd as one's digit not divisible by 2.
