

Factors and Multiples

Practice (Page 83)

Factors of 10: 1, 2, 5 and 10

Factors of 25: 1, 5 and 25

Common factors of 10 and 25 = 1, 5

Checkpoint 5A

2. To check whether the first number is a factor of the second number, divide the second number by the first number. If the remainder is 0 or the second number is completely divisible by the first number, then the first number is a factor of the second number.

(b) $100 \div 9 = 11 \text{ R } 1$

Since, here we got the remainder 1. Thus, 9 is not the factor of 100.

(e) $121 \div 11 = 11 \text{ R } 0$

Since, here we got the remainder as 0. Therefore, 11 is a factor of 121.

3. (a) 2nd multiple of 5 = 10; 3rd multiple of 5 = 15; 5th multiple of 5 = 25

7th multiple of 5 = 35; 10th multiple of 5 = 50

4. (a) Factors of 7: 1, 7 (2 factors)

(d) Factors of 39: 1, 3, 13, 39 (4 factors)

5. (a) Multiples of 6 between 10 and 100

= 12, 18, 24, 30, 36, 42, 48, 54, 60, 66, 72, 78, 84, 90, 96 (15 multiples)

(d) Multiples of 11 between 10 and 100

= 11, 22, 33, 44, 55, 66, 77, 88, 99 (9 multiples)

6. Since, 140 is divisible by 7 and 20. So, 7 and 20 both are the factors of 140.

Factors of 140: 1, 2, 4, 5, 7, 10, 14, 20, 28, 35, 70, 140

So, the other factors of 140 except 7 and 20 are 1, 2, 4, 5, 10, 14, 28, 35, 70, 140.

8. (a) Factors of 8: 1, 2, 4, 8

Factors of 20: 1, 2, 4, 5, 10, 20

Common factors of 8 and 20 = 1, 2 and 4

- (b) Factors of 6: 1, 2, 3, 6

Factors of 15: 1, 3, 5, 15

Factors of 21: 1, 3, 7, 21

Common factors of 6, 15 and 21 = 1 and 3

Checkpoint 5B

2. Since, 9 is multiple of 3. And if a number is divisible by any of the multiple of 3, then it will also be divisible by 3 or if a number is divisible by 9, then it will also be divisible by its factors.

3. (b) $59320 \div 2$ (Here, last digit of the dividend is 0, so it is divisible by 2)

$59320 \div 3$ (Here, sum of the digits of the dividend = $5 + 9 + 3 + 2 + 0 = 19$, which is not divisible by 3. So, the dividend is also not divisible by 3)

$59320 \div 4$ (Here, last two digits, that is, 20 is divisible by 4, so the dividend is divisible by 4)

$59320 \div 5$ (Here, last digit of the dividend is 0, so it is divisible by 5)

$59320 \div 6$ (Here, the number is divisible by 2 but not divisible by 3, so it is not divisible by 6)

$59320 \div 9$ (Here, sum of the digits of the dividend = $5 + 9 + 3 + 2 + 0 = 19$, which is not divisible by 9. So, the dividend is also not divisible by 9)

$59320 \div 10$ (Here, last digit of the dividend is 0, so it is divisible by 10)

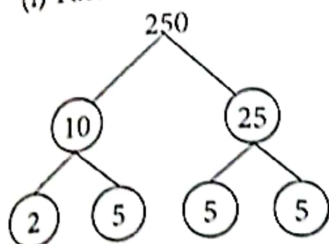
Checkpoint 5C

2. (a) Greatest 4-digit number = 9999
The predecessor of 9999 will be the required greatest 4-digit even number, that is,
 $9999 - 1 = 9998$
(b) Smallest 4-digit odd number using the digits 5, 7, 0 and 9 = 5079

Checkpoint 5D

3. (c) 250

(i) Factor tree method:



$$250 = 2 \times 5 \times 5 \times 5$$

(ii) Division method:

2	250
5	125
5	25
5	5
	1

$$250 = 2 \times 5 \times 5 \times 5$$

4. Factorising 210, we get

2	210
3	105
5	35
7	7
	1

- (a) All the factors of $210 = 1, 2, 3, 5, 6, 7, 10, 14, 15, 21, 30, 35, 42, 70, 105, 210$
(b) Factor pairs: $(1, 210), (2, 105), (3, 70), (5, 42), (6, 35), (7, 30), (10, 21), (14, 15)$
(c) Prime factors: 2, 3, 5, 7
(d) Composite factors: 6, 10, 14, 15, 21, 35, 42, 70, 105, 210

Let Us Assess

- (e) Factors of 84: 1, 2, 4, 6, 7, 12, 14, 21, 28, 42, 84
- (b) Prime numbers more than 70 but less than 90 = 71, 73, 79, 83, 89
Composite numbers more than 70 but less than 90 = 72, 74, 75, 76, 77, 78, 80, 81, 82, 84, 85, 86, 87, 88
- To check whether a number is prime or composite, find its factors.
If the number has 1 and the number itself as two factors only, it is prime otherwise it is a composite number.
- A number will be divisible by 6 if it is divisible by 2 and 3 both.
- (a) Thirteenth multiple of 2 = $13 \times 2 = 26$
(b) Greatest 2-digit multiple of 3 = Greatest 2-digit number divisible by 3
Greatest 2-digit number = 99 which is also divisible by 3.
Thus, 99 will be the required greatest multiple of 3.
(c) Greatest factor of the greatest 5-digit number will be the greatest 5-digit number itself, that is, 99999.
(d) Smallest multiple of the greatest 5-digit number = $1 \times \text{Greatest 5-digit number}$
 $= 1 \times 99999 = 99999$
- Suppose 2, 3, 5 and 7 are the prime factors of a number.
Then, prime factorisation of the number
 $= 2 \times 3 \times 5 \times 7 = 210$
Thus, the number will be 210.
(Answers may vary.)
- (b) Prime factorisation of $28 = 2 \times 2 \times 7$
(c) Prime factorisation of 160
 $= 2 \times 2 \times 2 \times 2 \times 2 \times 5$

HOTS

1. Factors of 1000: 1, 2, 4, 5, 8, 10, 20, 25, 40, 50, 100, 125, 200, 250, 500, 1000

Multiples of 50: 50, 100, 150, 200, 250, 300, 350, 400, 450, 500, ..., 1000

Also, we can see here, factors 1, 2, 4, 5, 8, 10, 20, 25, 125 are not the multiples 50.

2. Here, all pairs of numbers are co-prime numbers.

Let's Work in Mind

1. 1 is a factor of every number.
3. Since, every even multiple of 3 is divisible by 2 and 3 both, so these multiples will also be divisible by 6 and hence will be the multiples of 6.
6. First multiple of every number greater than zero will be the number itself.