# ST. ANDREWS SCOTS SCHOOL

# Adjacent Navniti Apartments, I.P. Extension, Patparganj, Delhi-110092

# **Session - (2025-26)**

Class: IV Subject: Mathematics Topic: Unit -4 (Factors & Multiples)

Questions to be done-

Ex-1 Q.1(Book)

Q.2(a,c,d,f)(Notebook)

Q.3(b,d,e,f)(Notebook)

Ex -2 Q.1(Book)

Q.2(a,c,d)(Notebook)

Q.3(b,c,e)(Notebook)

Q.4(a,c,e)(Notebook)

Q.5(c,e)(Notebook)

Ex -3 Q.1,Q.3(Book)

Q.2(a,b,d,f,h,I,j)(Notebook)

Q.4(a,b,d)(Notebook)

Ex-4 Q.1,Q.2(Book)

Q.3,Q.4(Notebook)

Ex-5 Q.1(Book)

Q.2(a,d,e,h,j,l)(Notebook)

Q.3(a,d)(Notebook)

Ex-6 Q.1(Book)

Q.2(b,e,f)(Notebook)

Ex-7 Q.1(Book)

Q.2(b,d,g,h)(Notebook)

Q.3,Q.4,Q.5(Notebook)

Worksheet + Activity

# Lesson-4: Factors and Multiples

### Warm Up

2. 
$$3 \times 4 = 12$$

3. 
$$12 \times 1 = 12$$

4. 
$$6 \times 2 = 12$$

5. 
$$4 \times 3 = 12$$

6. 
$$1 \times 12 = 12$$

#### Exercise-1

1. (a) (iv)

30 is not a factor of 80.

18 is not a factor of 80.

8

24 is not a factor of 80.

8 is a factor of 80.

(b) (iii) 1 is a factor of every number.

5 is a factor of 65.

17 is not a factor

13 is a factor of 65.

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of 65.

2. (a)  $15 = 1 \times 15$ ,

$$15 = 3 \times 5$$

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

**(b)** 
$$20 = 1 \times 20$$
,

$$20 = 2 \times 10$$
,

$$20 = 4 \times 5$$

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

(c) 
$$24 = 1 \times 24$$
,

$$24 = 2 \times 12$$

$$24 = 3 \times 8$$
.

$$24 = 4 \times 6$$

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

(d) 
$$28 = 1 \times 28$$
,

$$28 = 2 \times 14$$

$$28 = 4 \times 7$$

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

(e) 
$$32 = 1 \times 32$$
,

$$32 = 2 \times 16$$
,

$$32 = 4 \times 8$$

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

(f) 
$$45 = 1 \times 45$$
,

$$45 = 3 \times 15$$
,

$$45 = 5 \times 9$$

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

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3. (a) 12 \div 1 = 12
                             (1 and 12 are the factors of 12)
         12 \div 2 = 6
                             (2 and 6 are the factors of 12)
                             (3 and 4 are the factors of 12)
         12 \div 3 = 4
        Thus, the factors of 12 are 1, 2, 3, 4, 6 and 12.
    (b) 18 \div 1 = 18
                             (1 and 18 are the factors of 18)
         18 \div 2 = 9
                             (2 and 9 are the factors of 18)
         18 \div 3 = 6
                             (3 and 6 are the factors of 18)
         18 \div 4 = 4 (remainder = 2),
                                                18 \div 5 = 3 (remainder = 3)
        Thus, the factors of 18 are 1, 2, 3, 6, 9 and 18.
    (c) 36 \div 1 = 36
                             (1 and 36 are the factors of 36)
         36 \div 2 = 18
                             (2 and 18 are the factors of 36)
         36 + 3 = 12
                             (3 and 12 are the factors of 36)
         36 \div 4 = 9
                             (4 and 9 are the factors of 36)
         36 \div 5 = 7 (remainder = 1),
                                                36 \div 6 = 6 (6 is a factor of 36)
        Thus, the factors of 36 are 1, 2, 3, 4, 6, 9, 12, 18 and 36.
    (d) 54 \div 1 = 54
                             (1 and 54 are the factors of 54)
         54 \div 2 = 27
                             (2 and 27 are the factors of 54)
         54 \div 3 = 18
                             (3 and 18 are the factors of 54)
         54 \div 4 = 13 (remainder = 2),
                                                     54 \div 5 = 10 (remainder = 4)
         54 \div 6 = 9 (6 and 9 are the factors of 54),
         54 \div 7 = 7 (remainder = 5)
                                                     54 \div 8 = 6 (remainder = 6)
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Thus, the factors of 54 are 1, 2, 3, 6, 9, 18, 27 and 54.

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

1. A number is divisible by 2 if its ones digit is 0, 2, 4, 6 or 8.

 (428)
 517
 (138)
 2345
 189
 (3456)
 (4838)

- 2. A number is divisible by 5 if the digit at ones place is either 0 or 5. So, (a) 230, (b) 425, (d) 635 and (e) 1720 are divisible by 5. A number is divisible by 10 if the digit at ones place is 0. So, (a) 230 and (e) 1720 are divisible by 10.
- (a) Sum of the digits of 39 = 3 + 9 = 12.
   Since 12 is divisible by 3, therefore, 39 is divisible by 3.
  - (b) Sum of the digits of 73 = 7 + 3 = 10.
    Since 10 is not divisible by 3, therefore, 73 is not divisible by 3.
  - (c) Sum of the digits of 282 = 2 + 8 + 2 = 12.Since 12 is divisible by 3, therefore, 282 is divisible by 3.
  - (d) Sum of the digits of 866 = 8 + 6 + 6 = 20. Since 20 is not divisible by 3, therefore, 866 is not divisible by 3.
  - (e) Sum of the digits of 4284 = 4 + 2 + 8 + 4 = 18. Since 18 is divisible by 3, therefore, 4284 is divisible by 3.

- **4. (a)** The number formed by the last two digits of 7004 is 04 or 4, which is divisible by 4. So, 7004 is also divisible by 4.
  - (b) The number formed by the last two digits of 7216 is 16, which is divisible by 4. So, 7216 is also divisible by 4.
  - (c) The last two digits of 8000 are zeros. So, 8000 is divisible by 4.
  - (d) The number formed by the last two digits of 1578 is 78, which is not divisible by 4. So, 1578 is also not divisible by 4.
  - (e) The number formed by the last two digits of 1982 is 82, which is not divisible by 4. So, 1982 is also not divisible by 4.
- 5. (a) Sum of the digits of 216 = 2 + 1 + 6 = 9 (which is divisible by 9) So, 216 is divisible by 9.
  - (b) Sum of the digits of 845 = 8 + 4 + 5 = 17 (which is not divisible by 9) So, 845 is not divisible by 9.
  - (c) Sum of the digits of 1872 = 1 + 8 + 7 + 2 = 18 (which is divisible by 9) So, 1872 is divisible by 9.
  - (d) Sum of the digits of 3006 = 3 + 0 + 0 + 6 = 9 (which is divisible by 9) So, 3006 is divisible by 9.
  - (e) Sum of the digits of 6715=6+7+1+5=19 (which is not divisible by 9) So, 6715 is not divisible by 9.

49 is a multiple of 7.

105 is a multiple of 7.

119 is a multiple of 7.

127 is not a multiple of 7.

74 is not a multiple of 6.

90 is a multiple of 6.

99 is not a multiple of 6.

100 is not a multiple of 6.

2. (a) The first five multiples of 4 are  $4 \times 1$ ,  $4 \times 2$ ,  $4 \times 3$ ,  $4 \times 4$ ,  $4 \times 5$  or, 4, 8, 12, 16, 20.

(b) The first five multiples of 7 are

 $7 \times 1$ ,  $7 \times 2$ ,  $7 \times 3$ ,  $7 \times 4$ ,  $7 \times 5$  or, 7, 14, 21, 28, 35.

(c) The first five multiples of 10 are  $10 \times 1$ ,  $10 \times 2$ ,  $10 \times 3$ ,  $10 \times 4$ ,  $10 \times 5$  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.

- (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.

- (1) The first five multiples of 35 are 35 × 1, 35 × 2, 35 × 3, 35 × 4, 35 × 5 or, 35, 70, 105, 140, 175.
- 3.  $\boxed{64}$  48 60  $\boxed{18}$   $\boxed{27}$  49  $\boxed{36}$   $\boxed{63}$   $\boxed{(::54=9\times6,18=9\times2,27=9\times3,36=9\times4,63=9\times7)}$
- 4. (a) No, 28 is not a multiple of 5 because 5 does not divide 28 exactly.  $5 \frac{5}{28}$ 
  - **(b)** Yes, 36 is a multiple of 6 because 6 divides 36 exactly.
  - (c) Yes, 64 is a multiple of 8 because 8 divides 64 exactly.
  - (d) Yes, 182 is a multiple of 7 because 7 divides 182 exactly.

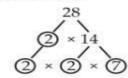
$$\begin{array}{r}
 26 \\
 7 \overline{\smash{\big)}\ 182} \\
 -14 \\
 \hline
 42 \\
 -42 \\
 \hline
 0
\end{array}$$

- 1. (a) (iv) 29 is a prime number.
  - (b) (ii) 69 is a composite number.
  - (c) (ii) The greatest 2-digit prime number is 97.
- (a) Factors of 5 are 1 and 5. (Only two factors) Hence, 5 is a prime number.
  - **(b)** Factors of 12 are 1, 2, 3, 4, 6 and 12. (More than two factors) Hence, 12 is a composite number.
  - (c) Factors of 15 are 1, 3, 5 and 15. (More than two factors) Hence, 15 is a composite number.
  - (d) Factors of 27 are 1, 3, 9 and 27. (More than two factors) Hence, 27 is a composite number.
  - (e) Factors of 31 are 1 and 31. (Only two factors) Hence, 31 is a prime number.

- (f) Factors of 39 are 1, 3, 13 and 39. (More than two factors) Hence, 39 is a composite number.
- (g) Factors of 52 are 1, 2, 4, 13, 26 and 52. (More than two factors) Hence, 52 is a composite number.
- (h) Factors of 60 are 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30 and 60. (More than two factors)
  Hence, 60 is a composite number.
- (i) Factors of 67 are 1 and 67. (Only two factors) Hence, 67 is a prime number.
- (j) Factors of 89 are 1 and 89. (Only two factors) Hence, 89 is a prime number.
- (k) Factors of 95 are 1, 5, 19 and 95. (More than two factors) Hence, 95 is a composite number.
- (1) Factors of 99 are 1, 3, 9, 11, 33 and 99. (More than two factors) Hence, 99 is a composite number.
- 3. Prime numbers between 75 and 100 are 79, 83, 89 and 97.
- 4. Two pairs of prime numbers which differ by 2 are: 3 and 5; 5 and 7. The other pairs are 11 and 13; 17 and 19; 41 and 43; 71 and 73.

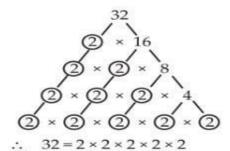
(iii) 
$$28 = 2 \times 2 \times 7$$

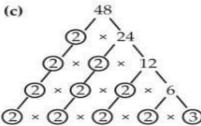
The prime factors of 28 are 2 and 7.



**(b)** (i) 
$$75 = 3 \times 5 \times 5$$

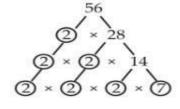
 $12 = 2 \times 2 \times 3$ 



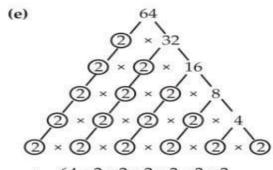


 $48 = 2 \times 2 \times 2 \times 2 \times 3$ 

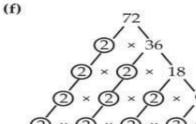
(d)



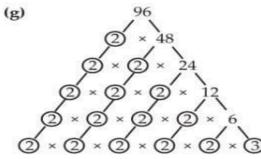
 $56 = 2 \times 2 \times 2 \times 7$ 



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

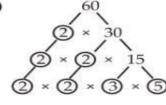


 $72 = 2 \times 2 \times 2 \times 3 \times 3$ 

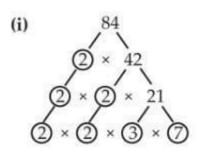


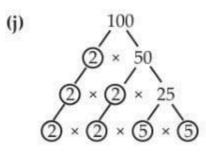
 $96 = 2 \times 2 \times 2 \times 2 \times 2 \times 3$ 

(h)



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





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

$$\therefore 28 = 2 \times 2 \times 7$$

(c) 
$$\frac{2}{5} \frac{70}{35}$$
  
 $\frac{7}{7} \frac{7}{1}$   
 $\therefore 70 = 2 \times 5 \times 7$ 

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

$$45 = 3 \times 3 \times 5$$

$$\therefore 144 = 2 \times 2 \times 2 \times 2 \times 3 \times 3$$

(a) (ii) The numbers with 1 as HCF are co-primes.

Factors of 9 are (1),(3), 9.

Factors of 12 are (1), 2, (3), 4, 6, 12.

Common factors of 9 and 12 are 1 and 3.

 $\therefore$  HCF of 9 and 12 = 3.

So, 9 and 12 are not co-primes.

Factors of 9 are (1), 3, 9.

Factors of 8 are ①, 2, 4, 8.

Common factor of 9 and 8 is 1.

.: HCF of 9 and 8 = 1

So, 9 and 8 are co-primes.

3 is a factor of 15.

So, HCF of 3 and 15 is 3.

So, 3 and 15 are not co-primes.

Factors of 12 are ①, ②, 3, ④, 6, 12.

Factors of 16 are 1, 2, 4, 8, 16.

Common factors of 12 and 16 are 1, 2 and 4.

HCF of 12 and 16 = 4.

So, 12 and 16 are not co-primes.

(b) (iii) Factors of 12 are ①, ②, 3, ④, 6, 12.

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

Common factors of 12 and 20 are 1, 2 and 4.

(c) (ii) Factors of 12 are (1), (2), (3), 4, (6), 12.

Factors of 18 are (1), (2), (3), (6), 9, 18.

Factors of 36 are (1), (2), (3), 4, (6), 9, 12, 18, 36.

Common factors of 12, 18 and 36 are 1, 2, 3 and 6.

2. (a) Factors of 4 are ①, ②, 4.

Factors of 6 are (1), (2), 3, 6.

Common factors of 4 and 6 are 1 and 2.

 $\therefore$  HCF of 4 and 6 = 2.

(b) Factors of 9 are (1), (3), 9.

Factors of 15 are ①, ③, 5, 15.

Common factors of 9 and 15 are 1 and 3.

 $\therefore$  HCF of 9 and 15 = 3.

- 2. (a) Factors of 4 are ①, ②, 4.
  Factors of 6 are ①, ②, 3, 6.
  Common factors of 4 and 6 are 1 and 2.
  ∴ HCF of 4 and 6 = 2.
  - (b) Factors of 9 are ①,③, 9.
    Factors of 15 are ①,③, 5, 15.
    Common factors of 9 and 15 are 1 and 3.
    ∴ HCF of 9 and 15 = 3.
  - (c) Factors of 30 are ①, ②, 3, ⑤, 6, ①, 15, 30.
     Factors of 40 are ①, ②, 4, ⑤, 8, ①, 20, 40.
     Common factors of 30 and 40 are 1, 2, 5 and 10.
     ∴ HCF of 30 and 40 = 10.
  - (d) Factors of 16 are ①,②,④, 8, 16.
     Factors of 20 are ①,②,④, 5, 10, 20.
     Common factors of 16 and 20 are 1, 2 and 4.
     ∴ HCF of 16 and 20 = 4.
  - (e) Factors of 6 are ①,②,③,⑥.
    Factors of 12 are ①,②,③,4,⑥, 12.
    Factors of 24 are ①,②,③,4,⑥,8,12,24.
    Common factors of 6, 12 and 24 are 1, 2, 3 and 6.
    ∴ HCF of 6, 12 and 24 = 6.

(f) Factors of 25 are ①, ⑤, 25.
Factors of 45 are ①, 3, ⑤, 9, 15, 45.
Factors of 50 are ①, 2, ⑤, 10, 25, 50.
Common factors of 25, 45 and 50 are 1 and 5.
∴ HCF of 25, 45 and 50 = 5.

- 1. (a) (iv) Multiples of 4 are 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, ...

  Multiples of 5 are 5, 10, 15, 20, 25, 30, 35, 40, ...

  First common multiple of 4 and 5 is 20.

  Next common multiples of 4 and 5 will be 40, 60, 80, ...

  So, 50 is not a common multiple of 4 and 5.
  - (b) (ii) Multiples of 14 are 14, 28, 42, 56, 70, 84, ...
     Multiples of 21 are 21, 42, 63, 84, ...
     Common multiples of 14 and 21 are 42, 84, ...
     ∴ LCM of 14 and 21 = 42.
- 2. (a) Multiples of 2 are 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, ...

  Multiples of 3 are 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, ...

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

  Lowest common multiple (LCM) of 2 and 3 is 6.
  - (b) Multiples of 4 are 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, ...

    Multiples of 5 are 5, 10, 15, 20, 25, 30, 35, 40, ...

    Common multiples of 4 and 5 are 20, 40, ...

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

- (d) Multiples of 9 are 9, 18, 27, 36, 45, 54, 63, 72, 81, 90, ...

  Multiples of 12 are 12, 24, 36, 48, 60, 72, 84, 96, ...

  Common multiples of 9 and 12 are 36, 72, ...

  LCM of 9 and 12 = 36.
- (e) Multiples of 3 are 3, 6, 9, 12, 15, 18, 21, 24, 27, 30,...
   Multiples of 9 are 9, 18, 27,...
   Common multiples of 3 and 9 are 9, 18, 27, ...
   ∴ LCM of 3 and 9 = 9.
- (f) Multiples of 10 are 10,20, 30,40, 50,60, 70,80, 90, 100,...
   Multiples of 20 are 20,40,60,80, 100, ...
   Common multiples of 10 and 20 are 20, 40, 60, 80, 100, ...
   ∴ LCM of 10 and 20 = 20.
- (g) 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,... Common multiples of 15 and 20 are 60, 120, ... ∴ LCM of 15 and 20 = 60.
- (h) Multiples of 15 are 15, 30, 45, 60, 75, 90, 105, 120, 135, 150, 165, 180,...
   Multiples of 18 are 18, 36, 54, 72, 90, 108, 126, 144, 162, 180,...
   Common multiples of 15 and 18 are 90, 180, ...
   ∴ LCM of 15 and 18 = 90.
- 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, ...
   Multiples of 20 are 20, 40, 60, 80, 100, 120, ...
   Common multiples of 12, 15 and 20 are 60, 120, ...
   ∴ LCM of 12, 15 and 20 = 60.
- LCM of 2 and 5 = 10 = First common multiple of 2 and 5
   So, the next five common multiples of 2 and 5 are
   10 × 2, 10 × 3, 10 × 4, 10 × 5, 10 × 6, that is, 20, 30, 40, 50, 60.
- 5. (a) 6, 12, 18, 24, 30, 36, 42, 48, 54, 60, 66, 72, 78.
  - **(b)** 9, 18, 27, 36, 45, 54, 63, 72, 81.
  - (c) 18, 36, 54, 72
  - (d) LCM of 6 and 9 is 18.