

Day 22 Sept 2020

Chapter - 5

Multiples and Factors

1. Multiples \Rightarrow A multiple is the product result of one number multiplied by another number.
Ex $\rightarrow 1 \times 2 = 2, 1 \times 3 = 3$ etc.
2. Even no \Rightarrow Any integer that can be divided exactly by 2 is an even number. The last digit is 0, 2, 4, 6 or 8.
3. Odd no \Rightarrow Any integer that cannot be divided exactly by 2 is an odd number. The last digit is 1, 3, 5, 7 or 9.
4. Factor \Rightarrow Factors are what numbers can be multiplied together to make another number. (Ex 1, 2, 3 and 6 are factors of 6), ~~multiples are~~
5. Prime Number \Rightarrow a whole number that cannot be made by multiplying other whole numbers.
6. Composite Number \Rightarrow It can be defined as the whole no. that have more than two factors.

My Practice Time 1

Q1 Write the first nine multiples of the following numbers.

4	$4 \times 1 = 4$	$4 \times 2 = 8$	$4 \times 3 = 12$	$4 \times 4 = 16$	$4 \times 5 = 20$	$4 \times 6 = 24$	$4 \times 7 = 28$	$4 \times 8 = 32$	$4 \times 9 = 36$
7	7	14	21	28	35	42	49	56	63
9	18	27	36	45	54	63	72	81	
8	8	16	24	32	40	48	56	64	72
6	6	12	18	24	30	36	42	48	54
3	3	6	9	12	15	18	21	24	27

Day 24 Sep 2020

Class - IV

My Practice Time 1

Q2. Find the factors of the following numbers by arranging them in rows and columns.

- (a) 36 (b) 42 (c) 40 (d) 56 (e) 28 (f) 48
(g) 54 (h) 60.

Sol

- (a) 36 \rightarrow 1, 2, 3, 4, 6, 9, 12, 18 and 36.
(b) 42 \rightarrow 1, 2, 3, 6, 7, 14, 21 and 42.
(c) 40 \rightarrow 1, 2, 4, 5, 8, 10, 20 and 40.
(d) 56 \rightarrow 1, 2, 4, 7, 14, 8, 28 and 56.
(e) 28 \rightarrow 1, 2, 4, 7, 14 and 28.
(f) 48 \rightarrow 1, 2, 3, 4, 6, 8, 12, 16, 24 and 48.
(g) 54 \rightarrow 1, 2, 3, 6, 9, 18, 27 and 54.
(h) 60 \rightarrow 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30 and 60.

Q3 Write the prime numbers:-

- (a) between 10 and 20 \rightarrow 11, 13, 17, 19
(b) between 30 and 66 \rightarrow 31, 37, 41, 43, 47, 53
59, 61
(c) between 56 and 99 \rightarrow 59, 61, 67, 71, 73, 79
83, 89, 97.
(d) between 16 and 69 \rightarrow 17, 19, 23, 29, 31, 37, 41
43, 47, 53, 59, 61, 67.

Q4. Find the factors of the following numbers. Then write whether they are prime or composite number.

(a) 21 Factors: - 1, 3, 7, 21. Composite.

(b) 37 \rightarrow Factors \rightarrow 1 and 37. Prime no.

(c) 90 \rightarrow Factors: - 1, 2, 3, 5, 6, 9, 10, 15, 18, 30, 45
90 - Composite no.

(d) 48 \rightarrow Factors: - 1, 2, 3, 6, 8, 12, 16, 24 and 48
Composite no.

(e) 79 \rightarrow Factors: - 1 and 79. Prime no.

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My Practice Time 2

The Divisibility Rules

Divisibility Rule of 2 :- All even no. are divisible by 2. Even no. end in 0, 2, 4, 6 and 8. So all the no. ending in 0, 2, 4, 6, 8 are divisible by 2.

Divisibility Rule of 3 :- A number is divisible by 3 if the sum of the digits of that no. is divisible by 3.
Ex $\rightarrow 2421 = 2 + 4 + 2 + 1 = 9$

Divisibility Rule of 4 :- A number is divisible by 4 if the last 2 digits are both 0 or the number formed by the last two digits is divisible by 4.
Ex 3800 and 1448

Divisibility Rule of 5 :- A no. is divisible by 5 if the last digit is 0 and 5.
Ex $\rightarrow 1405$ and 3100

Divisibility Rule of 9 \rightarrow A no. is divisible by 9 if the sum of all the digits is divisible by 9.

Divisibility Rule of 10 \rightarrow A number is divisible by 10 if the last digit of the no. is 0.

Q1. Tick (✓) the correct boxes.

No.	Divisible by 2	D.b. 3	D.b. 4	D.b. 5	D.b. 9	D.b. 10
156	✓	X	X	X	X	X
177	X	✓	X	X	X	X
148	✓	X	✓	X	X	X
765	X	✓	X	✓	✓	X
255	X	✓	X	✓	X	X
630	✓	✓	X	✓	✓	✓

Q2. Which smallest digit will you add at the end to make these no. divisible by

(a) by 2⁰

(i) 2341 - 1 (iii) 4532 - 0

(ii) 7863 - 1 (iv) 7869 - 1

(b) by 3⁰

(i) 3124 - 2 (ii) 4531 - 2 (iii) 4401 - 0

(iv) 7090 - 2

(c) by 4⁰

(i) 5677 - 3 (ii) 3122 - 2

(iii) 4531 - 1 (iv) 9084 - 0

MY Practice Time - 2

Coprime no \Rightarrow When 2 numbers have only 1 as their common factor, they are called coprime nos.

Twin prime no \rightarrow If two prime no have only one number between them, then they are called twin prime no.

Perfect no \rightarrow A no which is the sum of all of its factors except the number itself. It is called a perfect no.

Find the common factors of the following.

(a) 20, 24

Common factor of 20 \rightarrow (1), (2), (4), 5, 10 and 20.

24 \rightarrow (1), (2), 3, (4), 6, 8, 12 and 24.

Common factor of 20 and 24 = 1, 2 and 4.

(b) 16, 20

Factors of 16 \rightarrow (1), (2), (4), 8 and 16

20 \rightarrow (1), (2), (4), 5, 10 and 20

Common factor of 16 and 20 = 1, 2, 4

(c) 24, 30

Factors of 24 \rightarrow (1), (2), (3), 4, (6), 8, 12 and 24.

30 \rightarrow (1), (2), (3), 5, (6), 10 and ~~15~~ 30.

Common factor of 24 and 30 = 1, 2, 3 and 6.

(d) 30, 50

Common factor 30 \rightarrow 1, 2, 3, 5, 6, 10, 15 and 30

50 \rightarrow 1, 2, 5, 10, 25 and 50

Common factor of 30 and 50 \rightarrow 1, 2, 5 and 10.

(e) 12, 18

Common factor of 12 \rightarrow 1, 2, 3, 4, 6 and 12.

18 \rightarrow 1, 2, 3, 6, 9 and 18.

C.F \Rightarrow 1, 2, 3 and 6.

(f) 20, 25

Factor of 20 \rightarrow 1, 2, 4, 5, 10 and 20.

25 \rightarrow 1, 5 and 25

C.F of 20 and 25 = 1 and 5.

(g) 14, 21

factor of 14 \rightarrow 1, 2, 7 and 14.

21 \rightarrow 1, 3, 7 and 21.

C.F of 14 and 21 = 1 and 7.

Q2. Look at the first 10 multiples of the 2 given numbers and find the common multiples.

(a) 2, 3

multiple of 2 \rightarrow 2, 4, 6, 8, 10, 12, 14, 16, 18, 20.

3 \rightarrow 3, 6, 9, 12, 15, 18, 21, 24, 27, 30

Common multiples of 2 and 3 \rightarrow 6, 12, 18.

(b) 3, 5
multiple of 3 \rightarrow 3, 6, 9, 12, 15, 18, 21, 24, 27, 30
5 \rightarrow 5, 10, 15, 20, 25, 30, 35, 40, 45, 50
C.M of 3 and 5 \rightarrow 15 and 30.

(c) 4, 6
multiple of 4 \rightarrow 4, 8, 12, 16, 20, 24, 28, 32, 36, 40
6 \rightarrow 6, 12, 18, 24, 30, 36, 42, 48, 54, 60
C.M of 4 and 6 \rightarrow 12, 24 and 36.

(d) 2, 8
multiple of 2 \rightarrow 2, 4, 6, 8, 10, 12, 14, 16, 18, 20
8 \rightarrow 8, 16, 24, 32, 40, 48, 56, 64, 72, 80
C.M of 2 and 8 \rightarrow 16.

(e) 5, 10
multiple of 5 \rightarrow 5, 10, 15, 20, 25, 30, 35, 40, 45, 50
10 \rightarrow 10, 20, 30, 40, 50, 60, 70, 80, 90, 100
C.M of 5 and 10 \rightarrow 10, 20, 30 or 40 and 50.

(f) 4, 8
multiple of 4 \rightarrow 4, 8, 12, 16, 20, 24, 28, 32, 36, 40
8 \rightarrow 8, 16, 24, 30, 36, 42, 48, 54, 60
C.M of 4, 8 \rightarrow 8, 16, 24 and 36.

(g) 8, 6
multiple of 8 \rightarrow 8, 16, 24, 32, 40, 48, 56, 64, 72, 80
6 \rightarrow 6, 12, 18, 24, 30, 36, 42, 48, 54, 60
C.M of 8 and 6 \rightarrow 24 and 48.

Ex) 7, 6

multiple of 7 \rightarrow 7, 14, 21, 28, 35, 42, 49, 56, 63, 70

6 \rightarrow 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

C.M of 7 and 6 \rightarrow 42.

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Q3. Find twin prime number below 100.

Twin prime no \rightarrow If two ^{odd} prime numbers have only one no. between them, then they are called twin prime numbers.

Sol. (3, 5) (5, 7) (11, 13) (17, 19), (29, 31), (41, 43)
(59, 61) (71, 73)

Q4. Find coprime numbers below 100.

Coprime no \rightarrow When 2 numbers have only 1 as their common factor, they are called coprime numbers.

Sol. (3, 5) (5, 7), (11, 13) (17, 19) (29, 31) (41, 43)
(59, 61) (71, 73)

Q 5. Choose the correct answer:-

(a) Which of these is a perfect number?

(i) 26 (ii) 27 (iii) 28 (iv) 29

(i) Factors of 26 \Rightarrow 1, 2, 13 and 26
 $1+2+13 \Rightarrow 16$ (No)

Factors of 27 \Rightarrow 1, 3, 9 and 27
 $1+3+9 \Rightarrow 13$ (No)

Factors of 28 \Rightarrow 1, 2, 4, 7, 14 and 28
 $\Rightarrow 1+2+4+7+14 \Rightarrow 28$ (Yes)

Factors of 29 \Rightarrow 1, 29 (No)

(b) Which among these is a pair of coprime numbers?

~~Sol.~~ (i) 14 and 15 (ii) 14 and 21 (iii) 14 and 28
(iv) 14 and 7

Sol. (i) 14 and 15

Factors of 14 \Rightarrow 1, 2, 7 and 14

Factors of 15 \Rightarrow 1, 3, 5 and 15

C.F. \Rightarrow 1 (Yes)

(ii) 14 and 21

Factors of 14 \Rightarrow 1, 2, 7 and 14

Factors of 21 \Rightarrow 1, 3, 7 and 21

C.F. = 1, 7 (No)

(iii) 14 and 28

Factors of 14 \rightarrow ①, ②, ⑦ and ⑭

Factors of 28 \rightarrow ①, ②, 4, ⑦, ⑭ and 28.

C.F = 1, 2, 7 and 14 (No)

(iv) 14 and 7.

Factors of 14 \rightarrow ①, 2, ⑦ and 14

Factors of 7 \rightarrow ①, ⑦

C.F = 1, 7 (No)

(c) Which of these is a pair of twin prime numbers?

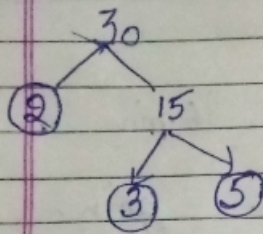
(i) 11 and 17 (ii) 7 and 17 (iii) 5 and 11 (iv) 17 and 19

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My Practice Time 4

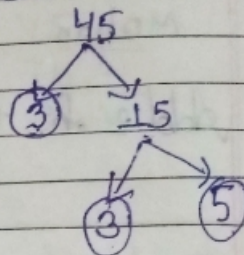
Q1 Use the factor tree method to find the prime factors of the following numbers:-
[Prime factors - 2, 3, 5, 7, 11, 13, 17, 19]

(a) 30



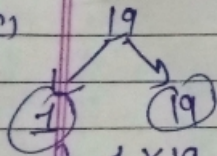
$\Rightarrow 2 \times 3 \times 5$
 $\Rightarrow 30$

(b) 45



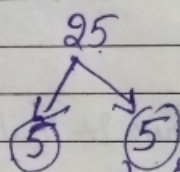
$\Rightarrow 3 \times 3 \times 5$
 $\Rightarrow 45$

(c)



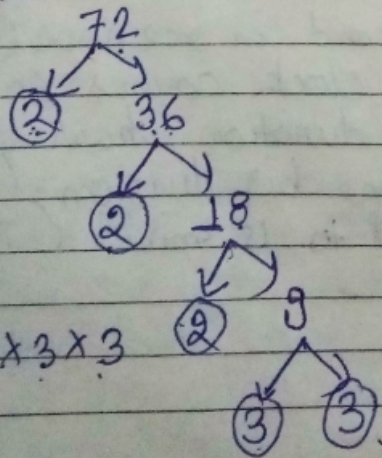
$\Rightarrow 1 \times 19 = 19$

(d)



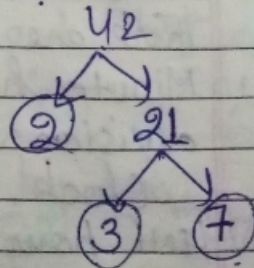
$\Rightarrow 5 \times 5 = 25$

(e) 72



$2 \times 2 \times 2 \times 3 \times 3$
 $\Rightarrow 72$

(f) 42



$\Rightarrow 2 \times 3 \times 7$
 $\Rightarrow 42$

Q2. Use division method to find the prime factors of the following.

(Prime no - 2, 3, 5, 7, 11, 13, 17, 19, ...)

(a) 48

2	48
2	24
2	12
2	6
3	3
	1

$\Rightarrow 2 \times 2 \times 2 \times 2 \times 3$
48.

(b) 56

2	56
2	28
2	14
7	7
	1

$\Rightarrow 2 \times 2 \times 2 \times 7$
 $\Rightarrow 56.$

(c) 18

2	18
3	9
3	3
	1

$\Rightarrow 2 \times 3 \times 3 \Rightarrow 18$

(d) 55

5	55
11	11
	1

$\Rightarrow 5 \times 11 = 55$

(e) 24

2	24
2	12
2	6
3	3
	1

$2 \times 2 \times 2 \times 3 \Rightarrow 24.$

(f) 63

3	63
3	21
7	7
	1

$\Rightarrow 3 \times 3 \times 7$
 $\Rightarrow 63.$

Q3. Fill in the circles and the boxes.

