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PLAYING WITH NUMBERS

SUBJECT : MATHEMATICS
CHAPTER NUMBER: 09
CHAPTER NAME :PLAYING WITH NUMBERS
SUBTOPIC : Find Divisors
PERIOD NO: 2

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Learning outcomes

- Students will be able to find divisors of any given number.
- Students will be able to find multiples and factors of given numbers.

PREVIOUS KNOWLEDGE TEST

1. $25 - [12 - \{5 + 18 \div (4 - 5\text{–}\overline{3\text{------}})\}]$

NOTE: ------ IS BAR BRACKET

Solution:

$25 - [12 - \{5 + 18 \div (4 - 5\text{–}\overline{3\text{------}})\}]$

By calculating further, we get

$= 25 - [12 - \{5 + 18 \div (4 - 2)\}]$

$= 25 - [12 - \{5 + 18 \div 2\}]$

$= 25 - [12 - \{5 + 9\}]$

$= 25 - [12 - 14]$

$= 25 - [-2]$

$= 25 + 2$

$= 27$

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- Students will Learn finding factors and multiples with the help of a video .
- https://www.youtube.com/watch?v=pcluEJNUNao(10.25)

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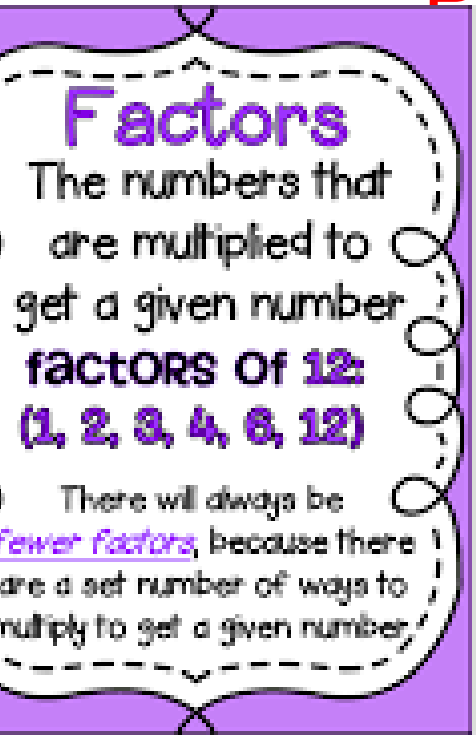

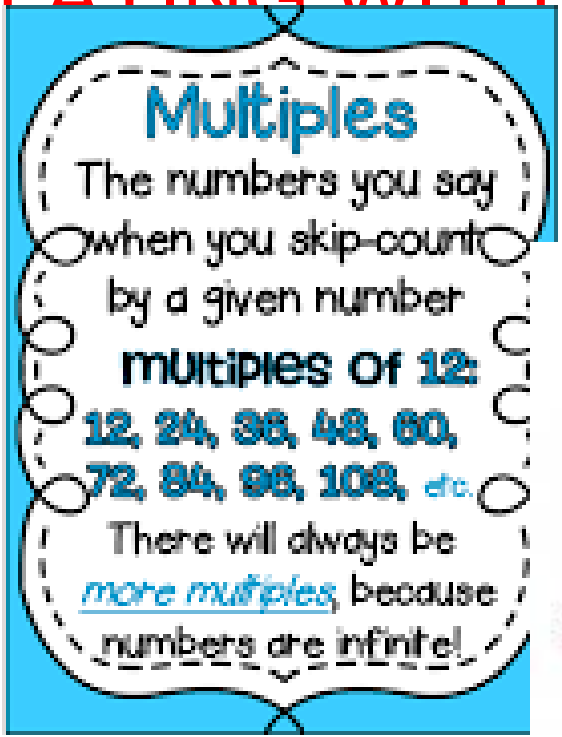

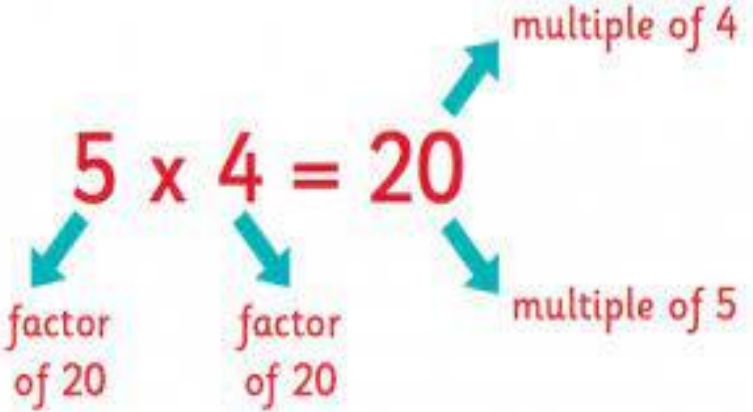

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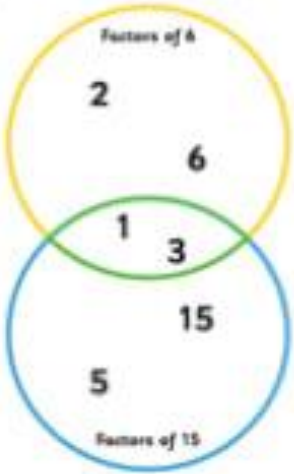
Common Factors

A common factor is a factor of 2 or more numbers.

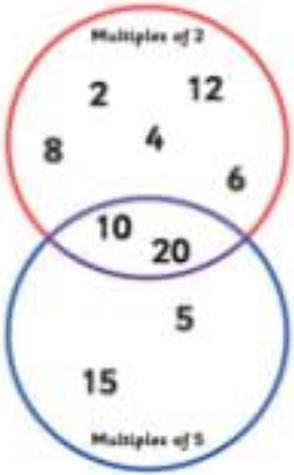
e.g. 3 is a common factor of 6 and 15.



Common Multiples

A common multiple is a multiple of 2 or more numbers.

e.g. 10 is a common multiple of 2 and 5.



Prime Numbers

A natural number greater than 1 with no divisors other than 1 and itself.

Remember these facts about Prime Numbers!

There are no even numbers except 2.

There are no prime numbers ending in 5, except 5.

The digits can't add up to 3 except 3 (digital root).

Evaluation Question

1. Fill in the blanks:

(i) On dividing 9 by 7, quotient = …….. and remainder = …….

(ii) On dividing 18 by 6, quotient = …….. and remainder = ……

(iii) Factor of a number is …….. of ……..

(iv) Every number is a factor of ……

(v) Every number is a multiple of ……

(vi) ……. is factor of every number.

(vii) For every number, its factors are ……. and its multiples are …….

(viii) x is a factor of y, then y is a …….. of x.

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Evaluation Question

2. Write all the factors of:

(i) 16 (ii) 21 (iii) 399 (iv) 48 (v) 64 (vi) 98

Solution:

All factors of 16 are: 1, 2, 4, 8, 16

(ii) All factors of 21 are: 1, 3, 7, 21

(iii) All factors of 39 are: 1, 3, 13, 39

(iv) All factors of 48 are: 1, 2, 3, 4,6, 8, 12, 16, 24, 48

(v) All factors of 64 are: 1, 2, 4, 8, 16, 32, 64

(vi) All factors of 98 are: 1, 2, 7, 14, 49, 98

Evaluation Question

3. Write the first six multiples of:

(i) 4 (ii) 9 (iii) 11 (iv) 15 (v) 18 (vi) 16

Solution:(i) Following are the first six multiples of 4

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

$4 \times 4 = 16$ $5 \times 4 = 206 \times 4 = 24$

Hence, multiples of 4 are 4, 8, 12, 16, 20 and 24

(ii) Following are the first six multiples of 9

$1 \times 9 = 92 \times 9 = 183 \times 9 = 27$

$4 \times 9 = 36$ $5 \times 9 = 456 \times 9 = 54$

Hence, multiples of 9 are 9, 18, 27, 36, 45 and 54

Evaluation Question

4. The product of two numbers is 36 and their sum is 13. Find the numbers.

Solution:

36 can be written as

$1 \times 36 = 36$, $2 \times 18 = 36$, $3 \times 12 = 36$

$4 \times 9 = 36$, $6 \times 6 = 36$

Here, the sum of 4 and 9 is 13

Hence, 4 and 9 are the two numbers

Evaluation Question

5. The product of two numbers is 48 and their sum is 16. Find the numbers.

Solution:

48 can be written as

$1 \times 48 = 48$, $2 \times 24 = 48$, $3 \times 16 = 48$

$4 \times 12 = 48$, $6 \times 8 = 48$

Here, the sum of 4 and 12 is 16

Hence, 4 and 12 are the two numbers

Evaluation Question

6. Write two numbers which differ by 3 and whose product is 54.

Solution:

54 can be written as

$1 \times 54 = 54$

$2 \times 27 = 54$

$3 \times 18 = 54$

$6 \times 9 = 54$

Here, the difference between 6 and 9 is 3

Hence, 6 and 9 are the two numbers

Evaluation Question

7. Without making any actual division show that 7007 is divisible by 7.

Solution:

Given

7007

This can be written as

= 7000 + 7

= 7 × (1000 + 1)

= 7 × 1001

Clearly, 7007 is divisible by 7

Evaluation Question

8. Without making any actual division show that 2300023 is divisible by 23

Solution:

Given

2300023

This can be written as

= 2300000 + 23

= 23 × (100000 + 1)

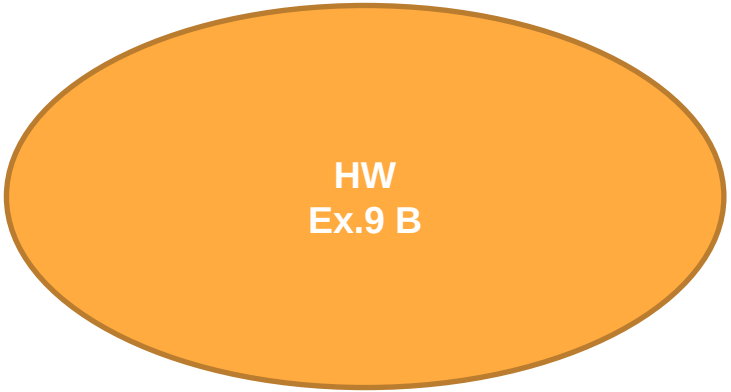
= 23 × 100001

Clearly, 2300023 is divisible by 23

Additional Homework

1. The product of two numbers is 36 and their sum is 13. Find the numbers.

2. The product of two numbers is 48 and their sum is 16. Find the numbers.



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