Have you heard of these words?

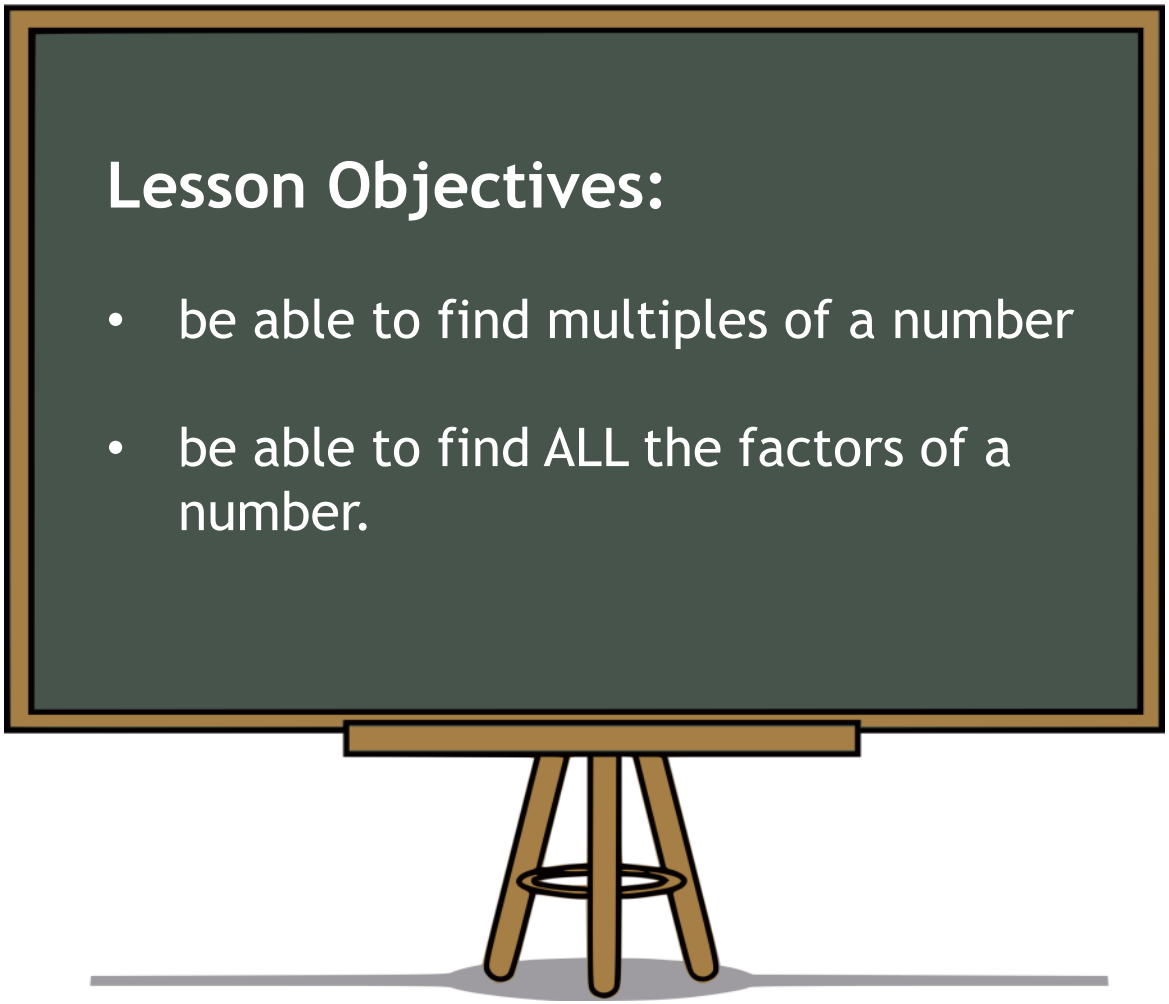
MULTIPLE

FACTOR

INTEGER

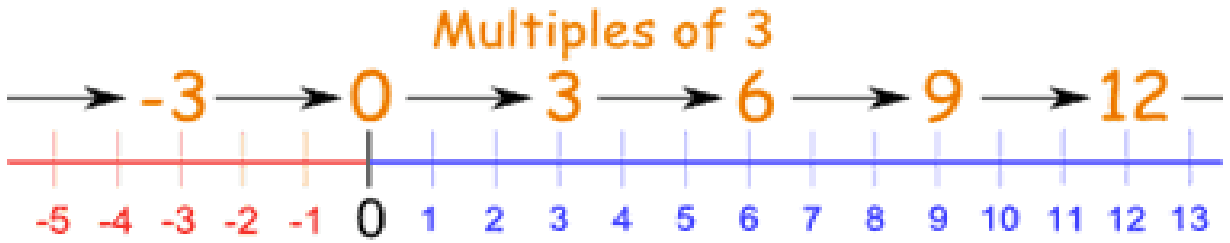
Write down what these words mean to you.

Multiples and Factors



Multiples

A multiple is the result of multiplying a number by an integer.

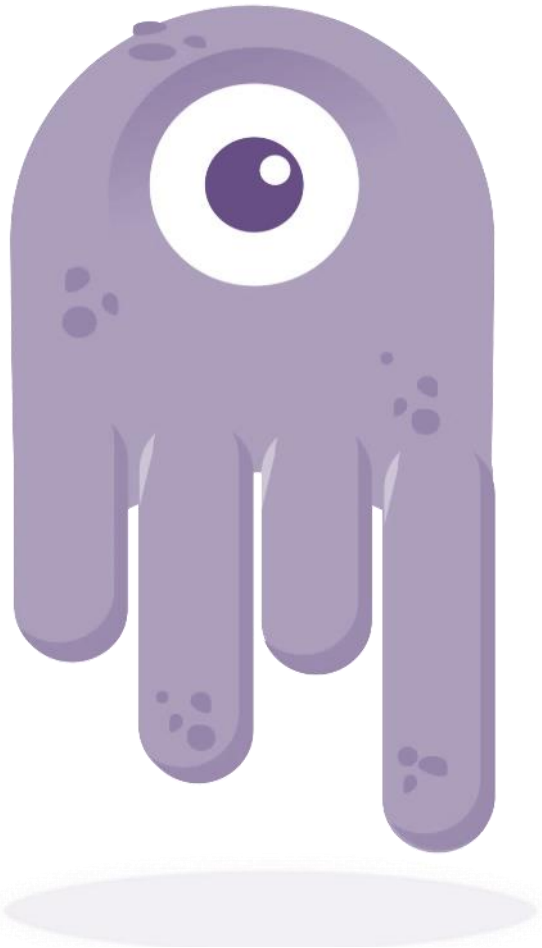


1 x 3 = **3**	2 x 3 = **6**	3 x 3 = **9**	4 x 3 = **12**
-1 x 3 = **-3**	-2 x 3 = **-6**	-3 x 3 = **-9**	-4 x 3 = **-12**

-12, -9, -6, -3, 3, 6, 9, 12 … are all multiples of 3 AND they can keep going.

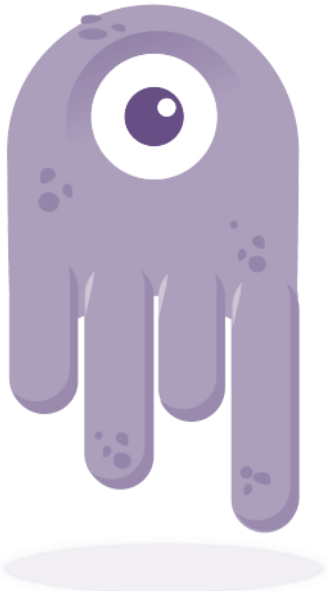
2874, 4311, 12933 … are all multiples of 3

How are we going to remember this?



The Multiple Monster

The multiplication monster makes **NUMBERS BIGGER.**



Remember: a multiple is the result of multiplying a number by an integer.

Underneath write the next FIVE multiples of the following numbers:

1) 3 **2) 7** **3) 11** **4) 25** **5) 31**

3	6, 9, 12, 15, 18 …
7	14, 21, 28, 35, 42 …
11	22, 33, 44, 55, 66 …
25	50, 75, 100, 125, 150 …
31	62, 93, 124, 155, 186 …

Factors

Factors are the numbers we multiply together to get a product.

$$2 \times 3 = 6$$

This means that 2 and 3 are both FACTORS of 6

A number can have many factors.

Factors of 12 are:

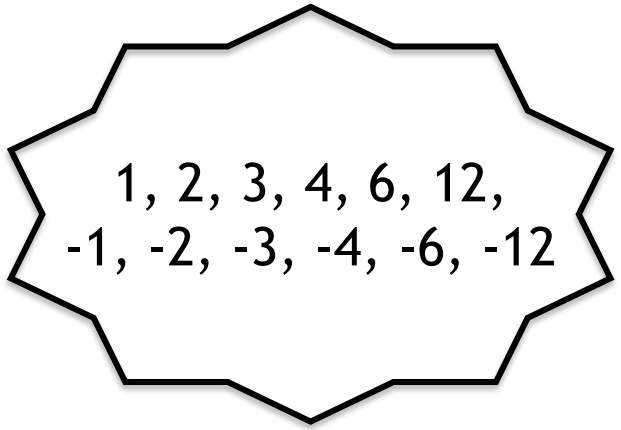
1 x 12 = 12 so **1** and **12** are factors of 12
2 x 6 = 12 so **2** and **6** are factors of 12
3 x 4 = 12 so **3** and **4** are factors of 12

What about negative numbers?

-1, -2, -3, -4, -6, and -12 are also factors of 12

(-1) x (-12) = 12
(-2) x (-6) = 12
(-3) x (-4) = 12

So ALL the factors of 12 are:



How are we going to remember this?

The Factor Ninja

The Factor Ninja CHOPS UP the product.

Remember: factors are the numbers we multiply together to get a product.

Stick your Factor Ninja in your book.

Underneath write ALL the factors for the following numbers:

1) 8 2)18 3)20 4)27 5)31

8 → 1 x 8 = 8, 2 x 4 = 8 → 1, 2, 4, 8, -1, -2, -4, -8

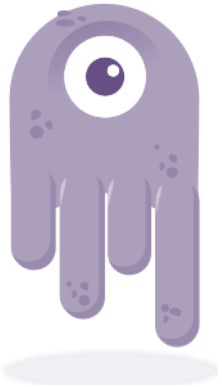
18 → 1 x 18 = 18, 2 x 9 = 18, 3 x 6 = 18 → 1, 2, 3, 6, 9, 18, -1, -2, -3, -6, -9, -18

20 → 1 x 20 = 20, 2 x 10 = 20, 4 x 5 = 20 → 1, 2, 4, 5, 10, 20, -1, -2, -4, -5, -10, -20

27 → 1 x 27 = 27, 3 x 9 = 27 → 1, 3, 9, 27, -1, -3, -9, -27

31 → 1 x 31 = 31 → 1, 31, -1, -31

Multiples and factors worksheets



Worksheet 1

Worksheet 2

Worksheet 3

Answers

Worksheet 1

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1) List the factors of 6

2) List the factors of 22

3) List the factors of 62

4) List the factors of 98

5) List the factors of 51

6) List the factors of 86

7) List the next five multiples of 4

8) List the next five multiples of 12

9) List the next five multiples of 9

10) Which is not a factor of 60?
A. 3
B. 14
C. 30
D. 4

11) Which is a factor of 70?
A. 18
B. 4
C. 17
D. 10

12) Which is not a factor of 30?
A. 12
B. 3
C. 2
D. 5

Worksheet 2

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1) List the factors of 85

2) List the factors of 32

3) List the factors of 100

4) List the next five multiples of 8

5) List the next five multiples of 13

6) List the next five multiples of 30

7) Which is a factor of 72?
   A. 19
   B. 18
   C. 5
   D. 10

8) Which is a factor of 48?
   A. 24
   B. 20
   C. 11
   D. 13

9) Which is not a factor of 50?
   A. 25
   B. 12
   C. 10
   D. 5

10) Which number is a factor of 20, but not a multiple of 2?
   A. 12
   B. 5
   C. 10
   D. 4

11) Which number is a factor of 21, but not a multiple of 7?
   A. 4
   B. 5
   C. 2
   D. 3

Worksheet 3

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1) List the factors of 92

2) List the factors of 103

3) List the factors of 48

4) List the next five multiples of 17

5) List the next five multiples of 6

6) List the next five multiples of 21

7) Which is not a factor of 56?
   A. 8
   B. 5
   C. 4
   D. 2

8) Which is a factor of 45?
   A. 4
   B. 3
   C. 11
   D. 18

9) Which is not a factor of 18?
   A. 3
   B. 14
   C. 6
   D. 2

10) Which number is a factor of 18, but not a multiple of 2?
   A. 8
   B. 6
   C. 9
   D. 4

11) Which number is a factor of 22, but not a multiple of 2?
   A. 4
   B. 11
   C. 6
   D. 7

Answers

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Worksheet 1

1) 1, 2, 3, 6, -1, -2, -3, -6
2) 1, 2, 11, 22, -1, -2, -11, -22
3) 1, 2, 31, 62
4) 1, 2, 7, 14, 49, 98, -1, -2, -7, -14, -49, -98
5) 1, 3, 17, 51, -1, -3, -17, -51
6) 1, 2, 43, 86, -1, -2, -43, -86
7) 8, 12, 16, 20, 24
8) 24, 36, 48, 60, 72
9) 9, 18, 27, 36, 45
10) B
11) D
12) A

Worksheet 2

1) 1, 5, 17, 85, -1, -5, -17, -86
2) 1, 2, 4, 8, 16, 32, -1, -2, -4, -8, -16, -32
3) 1, 2, 4, 5, 10, 20, 25, 50, 100, -1, -2, -4, -5, -10, -20, -25,-50, -100
4) 16, 24, 32, 40, 48
5) 26, 39, 52, 65, 78
6) 60, 90, 120, 150, 180
7) B
8) A
9) B
10) B
11) D

Worksheet 3

1) 1, 2, 4, 23, 46, 92, -1, -2, -4, -23, -46
2) 1, 103, -1, -103
3) 1, 2, 3, 4, 6, 8, 12, 16, 24, 48, -1, -2, -3, -4, -6, -8, -12, -16
4) 34, 51, 68, 85, 102
5) 12, 18, 24, 30, 36
6) 41, 63, 84, 105, 126
7) B
8) B
9) B
10) C
11) B

Factors and multiples

Show me using your **green**, amber and **red** cards how you feel about:

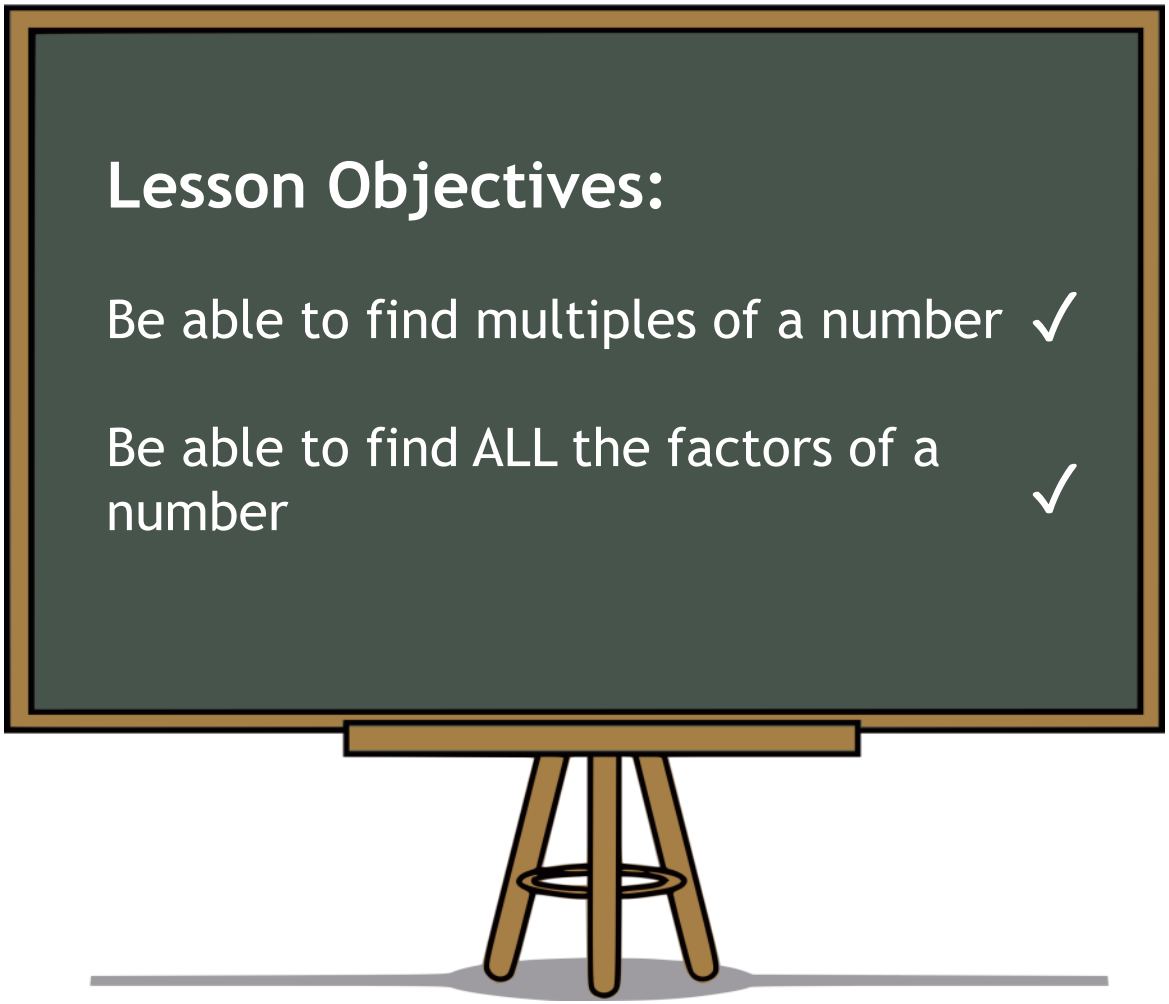
Do you know what multiples of number are?

Can you find ALL the factors of a number?

Can you find multiples of a number?

Do you know what factors of numbers are?

Do you agree?


Lesson Objectives:
Be able to find multiples of a number ✓
Be able to find ALL the factors of a number ✓