



Maths

Factors And Multiples



For Upper Primary



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Preview

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Investigating Factors

Factors are whole numbers that you can multiply together to make another number.

For example, the factors of 12 are 1, 2, 3, 4, 6 and 12 because:

$1 \times 12 = 12$

$2 \times 6 = 12$

$3 \times 4 = 12$

Some numbers have many factors while some only have two: 1 and the number itself.

Complete these questions about factors.

1. Write the missing factors for these numbers to complete each sequence.

a. 10: 1, 2, 5, ____

c. 9: 1, ____

b. 28: ____, 2, 4, ____, 14, ____

d. 13: 1, ____

2. Complete the quiz about your answers to question 1.

a. Which number had the least factors? _____

b. Which number/s were common to all? _____

c. What differences do you notice about the factors for odd and even numbers?

3. Write the factors for each number below as an ascending sequence, then draw lines between any factor pairs. An example has been done for you.

a. 20 $\overbrace{1, 2, 4, 5, 10, 20}$

b. 16 _____

c. 81 _____

d. 42 _____

4. Circle the factors in each sequence below for the number indicated, then write which factors are missing.

a. 25: 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23

Factor missing: ____

b. 100: 4, 10, 16, 22, 28, 34, 40, 46, 52, 58, 64, 70

Factors missing: _____

c. 63: 1, 7, 13, 19, 25, 31, 37, 42

Factors missing: _____

d. 90: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30

Factors missing: _____

Investigating Multiples

Multiples are closely related to factors. The multiples of a number are all the numbers in its times table.

For example, the multiples of 10 are 10, 20, 30, 40, 50, 60, 70 and so on.

The amount of multiples for any number is, in fact, endless!

Complete these questions about multiples.

1. Each sequence below shows some of the multiples of a mystery number. Write the number in the box next to each sequence.

a. 3, 6, 9, 12, 15, 18

Mystery number:

b. 14, 21, 28, 35, 42

Mystery number:

c. 26, 39, 52, 65, 78

Mystery number:

2. Circle the multiples of 5 in each sequence below.

a. 5, 8, 11, 14, 17, 20, 23, 26, 29, 32

b. 10, 17, 24, 31, 38, 45, 52, 59, 66, 73

c. 3, 6, 9, 12, 15, 18, 21, 24, 27, 30

3. Which numbers in the sequence below are multiples of 4 and 6? Circle them in two different colours (red for multiples of 4 and blue for multiples of 6).

2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24

Comment on any common numbers or patterns that you notice.

4. Fill in the missing multiples of each number below to make a sequence.

a. 9: 9, 18, 27, __, __, __, __, __

b. 8: 8, __, __, __, 40, __, __, 64, 72, __

c. 11: 22, __, __, 55, __, __, 88, 99, __

Is It Divisible?

If one number can be divided evenly by another number, we say it is divisible by that number. For example, 24 is divisible by 2 because it divides evenly into 24 exactly 12 times. However, 25 is not divisible by 2 because there is a remainder of 1.

It is useful to remember that any number is always divisible by its factors.

There are also rules about divisibility. These help you to understand quickly whether a number is divisible by another. Look at the divisibility rules on the right.

Divisibility Rules

1. A number is divisible by 2 if the last digit is an even number. For example, 12, 256, 1078.
2. A number is divisible by 3 if the sum of the digits is divisible by 3. For example, 30, 669, 5715.
3. A number is divisible by 4 if the last two digits are divisible by 4. For example, 24, 916, 7020.
4. A number is divisible by 6 if the number is divisible by both 2 and 3. For example, 60, 132, 402.

Study each number below. Use the divisibility rules above to say which numbers they are divisible by. It may be more than one of them! Explain how you worked out each one.

Number	Divisible by	How worked it out
a) 225		
b) 1078		
c) 6534		
d) 19036		
e) 15681		
f) 212122		

Preview

Divisibility Rules

Find a partner to work with to answer these questions. Try to figure out some possible divisibility rules for each of the numbers below.

Hint: You can think about the divisibility rules given on page 10 to help you. You should also look for any patterns that you can see.

1. 15, 20, 105 and 200 are all divisible by 5. What might the divisibility rule for this number (5) be?



2. 9, 18, 27 and 900 are all divisible by 9. What might the divisibility rule for this number (9) be?



3. 10, 30, 60 and 200 are all divisible by 10. What might the divisibility rule for this number (10) be?



4. 12, 72, 120 and 600 are all divisible by 12. What might the divisibility rule for this number (12) be? (Hint: Figure out two other smaller numbers these numbers are also divisible by.)



Answers

Investigating Factors

1.a) 10; **b)** 1, 7, 28; **c)** 3, 9; **d)** 13

2.a) 13; **b)** 1; **c)** There were more factors for even numbers and they included the number 2.

3.b) 1, 2, 4, 8, 16; **c)** 1, 3, 9, 27, 81; **d)** 1, 2, 3, 6, 7, 14, 21, 42

4.a) 1, 5 should be circled; 25 is missing; **b)** 4, 10 should be circled; 1, 2, 5, 20, 25, 50 and 100 are missing; **c)** 1 and 7 should be circled; 9, 3, 21 and 63 are missing; **d)** 3, 6, 9, 15, 18 and 30 should be circled; 1, 2, 5, 10, 45 and 90 are missing.

Investigating Multiples

1.a) 3; **b)** 7; **c)** 13

2.a) 5 and 20 should be circled

b) 10 and 45 should be circled

c) 15 and 30 should be circled

3. 4, 8, 12, 16, 20 and 24 should be circled in red (multiples of 4); 6, 12, 18 and 24 should be circled in blue (multiples of 6). The numbers 12 and 24 are common to both; the circled numbers are grouped in threes.

4.a) 36, 45, 54, 63, 72

b) 16, 24, 32, 48, 56, 80

c) 33, 44, 66, 77, 110

Is It Divisible?

a)3; **b)**2; **c)**2, 3, 6; **d)**2, 4; **e)**3; **f)**2

Divisibility Rules

1.The last digit is 0 or 5.

2.The sum of the digits is divisible by 9.

3.The last digit is 0.

4.The number is divisible by both 3 and 4.

Preview