

1.2.01 | Check yourself | The set of natural numbers and integers

1. Introductory tasks.

- List the first five positive multiples of 7.
- List all factors of 24 and underline all prime factors.
- Explain why 1113 is not a prime number?
- Express 108 as a product of prime factors.
- Determine the number all natural factors of the number 108.
- Find the Greatest Common Divisor of 2310 and 2730.
- Find the Least Common Multiple of 2310 and 2730.
- Find the smallest number divisible by all integers from 1 to 10.

2. Determine the set of all natural divisors of the number 160.

$$ND_{160} =$$

3. Factorize 720.

4. Write using mathematical symbols. The example **e** is done for you.

a	the set of all even numbers	
b	the set of all odd numbers	
c	the set of integers divisible by 3	
d	the set of integers which divided 3 give a remainder 1	
e	the set of integers which divided 3 give a remainder 2	$\{3n + 2 : n \in \mathbb{Z}\}$
f	the set of integers which divided 8 give a remainder 5	

5. Put YES if a number in the first column is divisible by the number in the first row.

DIVISIBILITY	2	3	4	5	6	7	8	9	11
-20171016									
20181024									
123567890									
121243									
39916800									

6. Find $GCD(840, 252)$ and $LCM(840, 252)$.

7. The product of two numbers is 1344 and the least common multiplier of these numbers is 168. Find the greatest common divisor of these two numbers.

8. Read the information in the table below and find common years for both BASKETBALL and VOLLEYBALL teams' meetings.

BASKETBALL team players meet every 4 years from 2020 up to 2050	VOLLEYBALL team players meet every 6 years from 2020 to 2050
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9. Find the remainder of division 2376 by 35.

10. What can you say about numbers of the form $8n + 3$ where $n \in N$? Write down 5 least natural numbers that can be written in this form.

11. Decide if the number described below is even or odd.

- | | |
|--|----------|
| (a) the sum of 7 odd numbers | EVEN/ODD |
| (b) the product of two odd numbers | EVEN/ODD |
| (c) the product of the odd numbers and one even number | EVEN/ODD |
| (d) the sum of 4 odd number and three even numbers | EVEN/ODD |

Divisibility Rules [provided by the Academic Center for Excellence](#)

	Rule	Example
Divisibility by 0	No numbers are divisible by 0.	None
Divisibility by 1	All numbers are divisible by 1.	All numbers
Divisibility by 2	If the last digit of a number is 0, 2, 4, 6 or 8, then the original number is divisible by 2.	109850 is divisible by 2
Divisibility by 3	Add the digits of a number. If the sum is divisible by 3, then the original number is divisible by 3.	The number 762 is divisible by 3 because $7+6+2=15$, and 15 is divisible by 3.
Divisibility by 4	If the last two digits of a number represent a number divisible by 4, then the original number is divisible by 4.	The number 235748 is divisible by 4, because 48 is divisible by 4.
Divisibility by 5	If the last digit of a number is 0 or 5, then the original number is divisible by 5.	The number 67895 is divisible by 5 because it ends in 5.
Divisibility by 6	If a number is divisible by 2 and 3 then it is divisible by 6.	The number 258 is divisible by 6 because it ends in 8, so it is divisible by 2, and the sum of digits is 15, and 15 is divisible by 3.
Divisibility by 7	Double the last digit and subtract it from the number formed by the remaining digits. If the result is divisible by 7, then the original number is divisible by 7.	The number 3416 is divisible by 7 because: $341 - 2 \times 6 = 329$ Repeat it if necessary with the result 329: $32 - 2 \times 9 = 14$ 14 is divisible by 7.
Divisibility by 8	If the last three digits of a number form a number divisible by 8, then the original number is divisible by 8.	The number 75488 is divisible by 8, because 488 is divisible by 8.
Divisibility by 9	Add the digits of a number. If the sum is divisible by 9, then the original number is divisible by 9.	The number 792 is divisible by 9 because $7+9+2=18$, and 18 is divisible by 9.
Divisibility by 10	If the last digit of a number is 0, then the original number is divisible by 10.	109850 is divisible by 10.
Divisibility by 11	Alternately add and subtract the digits of a number. If the result is divisible by 11, then the original number is divisible by 11.	The number 3564 is divisible by 11 because $4-6+5-3=0$, and 0 is divisible by 11.