

Maths topics for the project “Yes, We Code for Doing Maths”

For Scratch

1. Roman numerals.
2. Comparing natural numbers.
3. Representing natural numbers on a number axis.
4. Gauss sums (calculating sums like $1 + 2 + 3 + \dots + n$).
5. Operations with natural numbers (addition, subtraction, multiplication, division).
6. Division with remainder. The remainder theorem for natural numbers.
7. Divisibility. Divisor. Multiple.
8. Divisibility criteria (for 10, 5, 2, 3, 9).
9. Powers. Calculation powers of natural numbers.
10. Comparing powers of natural numbers.
11. Square numbers.
12. Linear equations.
13. Linear inequalities.
14. Decomposing numbers in base 10 (ex. $235 = 2 \cdot 10^2 + 3 \cdot 10 + 5$).
15. Scientific writing of natural numbers (ex. $2100000 = 2.1 \cdot 10^6$).
16. Prime numbers. Composite numbers.
17. Decomposing numbers in prime factors/prime factorization (ex. $18 = 2 \cdot 3^2$).
18. Calculation of the greatest common divisor (Euclidean algorithm).
19. Ordinary fractions. Comparing ordinary fractions.
20. Ordinary fractions – transformation into decimal fractions (ex. $2/5 = 0.4$).
21. Decimal fractions. Comparing decimal fractions.
22. Decimal fractions – transformation into ordinary fraction (ex. $3.45 = 345/100$).
23. Calculating Arithmetic mean of some numbers.
24. Calculating Weighted mean of some factors.
25. Percent. Calculating a percent.
26. Fibonacci squares: 1, 1, 2, 3, 5, 8, ...
27. Units of measurements: length and distance. Transformations (ex. $2 \text{ m} = 0.002 \text{ km}$).
28. Units of measurements: area. Transformations (ex. $3 \text{ m}^2 = 30000 \text{ cm}^2$).
29. Units of measurements: volume. Transformations (ex. $5 \text{ m}^3 = 5000 \text{ dm}^3$).
30. Units of measurements: angles. Addition and subtraction (ex. $25^{\circ}30'40'' + 38^{\circ}45'30'' = 64^{\circ}16'10''$).
31. Calculating areas (square, rectangle, triangle).
32. Calculating volumes (cube, cuboid).
33. Calculating square roots.

For GeoGebra

1. Classification of angles.
2. Supplementary angles.
3. Complementary angles.
4. Opposite angles.
5. Angles around a point.
6. Angle bisector.
7. The sum of the angles of a triangle.
8. Congruent triangles.
9. Medians of a triangle.
10. Bisectors of a triangle.
11. Perpendicular bisectors of a triangle.
12. Heights of a triangle.
13. Pythagorean theorem.
14. Area and perimeter of plane geometric figures.
15. Directly proportional and inversely proportional functions.
16. Translation/Rotation/Symmetry.
17. Circle: circumference and area.
18. Cartesian coordinates.