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Mathematics

Lower Secondary level

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Young Digital Poland
EDUCATION TECHNOLOGIES

Mathematics

Lower Secondary level

Chapter One Numbers (1)

- 1.1. Integers
 - Order of integers
 - Positive and negative integers
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 - Recall of number facts
 - Mental maths methods
- 1.2. Divisibility
 - Factors
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 - Prime factor
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 - Reciprocal as multiplicative inverse
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 - Rounding to 1, 2, 3 significant figures
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- 1.8. Powers and roots
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 - Square root (+ve & -ve)
 - Cube
 - Cube root
 - Index laws for $a^m a^n, \frac{a^m}{a^n}$
 - Positive and negative exponents
- 1.9. Standard index form (scientific notation)
 - Large and small numbers in the real world
- 1.10. Use of a Calculator
 - Order of operations
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Chapter Two Geometry, Transformations

- 2.1. Triangles
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 - Sum of the interior angles – proof
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 - Equilateral, isosceles and right-angled triangles
- 2.2. Congruent triangles
 - Conditions for congruency: *SSS, SAS, ASA, RHS*
- 2.3. Quadrilaterals
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- 2.4. Polygons and regular polygons
 - Pentagon, hexagon, polygons
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 - Angles of regular polygons
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 - Line, plane and space coordinates
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- 2.6. Symmetry
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 - Combinations of transformations
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Chapter Three Algebraic expressions

- 3.1. Algebraic expressions
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 - Algebraic expressions: examples, notation, value calculation
- 3.2. Multiplying out the brackets
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- 3.3. Multiplication formulas

$$(a \pm b)^2, (a - b)(a + b)$$

$$(a + b + c)^2$$

Pascal's triangle

3.4. Factorisation (by grouping)

Taking out the common factor

Grouping

3.5. Factorisation (other methods)

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Factorising $ax^2 + bx + c$

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Chapter Four

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Solving rational equations

Applications

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Claim

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Histograms – equal and unequal class intervals

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Mode and median

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Calculating segments in figures

Real-world problems

7.3 Application of the Pythagorean theorem in 3-D

Calculating segments in solids

Real-world problems

7.4 Ruler and compass constructions, locus

Constructions:

the midpoint and perpendicular bisector of a line segment,

the perpendicular from a point to a line,

the perpendicular from a point on a line and

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Chapter Eight

The circle

8.1 The circle

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- Applications
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 - The possibility space, its diagram (tree diagram, lattice diagram)

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Chapter Eighteen

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 - Systems of inequalities
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