



Mathematics II - Trigonometry

Department: Mathematics	Key of the matter: 701/708
Requirements: Have passed mathematics I of High School Mathematics	Year: First
Weekly load: 5	Date of elaboration April 2017

Topics

Unit I

- 1.1. What is trigonometry?
- 1.2. Average of an angle.
 - 1.2.1. Angle.
 - 1.2.2. Systems of measurement of angles.
 - 1.2.3. Conversion of degrees to radians and radians to degrees.
- 1.3. Types of angles.
 - 1.3.1. Right angle.
 - 1.3.2. Acute angle.
 - 1.3.3. Plain angle
 - 1.3.4. Perpendicular straight lines.
 - 1.3.5. Supplementary angles
 - 1.3.6. Complementary angles.
 - 1.3.7. Vertical angles
 - 1.3.8. Adjacent angles.
 - 1.3.9. Transverse line.
 - 1.3.10. External angles.
 - 1.3.11. Internal angles
 - 1.3.12. Alternate angles.
 - 1.3.13. Alternate internal angles.
 - 1.3.14. Alternate external angles.
 - 1.3.15. Corresponding angles.
 - 1.3.16. Angles theorem
- 1.4. Triangles



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- 1.4.1. Definition.
- 1.4.2. Classification and properties of triangles.
- 1.4.3. Definition of equality of triangles.
- 1.4.4. Medium of a triangle.
- 1.4.5. Centroid of a triangle.
- 1.4.6. Heron's formula of the height of a triangle.
- 1.4.7. Area of a triangle.
- 1.4.8. Congruence.
- 1.4.9. Similarity.

Unit II

- 2.1. Rectangular triangles.
 - 2.1.1. Trigonometric reasons.
 - 2.1.2. Pythagoras theorem
- 2.2. Law of sines and cosines.
- 2.3. Polygons
 - 2.3.1. Quadrilateral.
 - 2.3.2. Definition and classification of quadrilaterals.
 - 2.3.3. Definition and classification of polygons of more than 5 sides.
 - 2.3.4. Properties of the angles of polygons.
 - 2.3.5. External angles.
 - 2.3.6. Properties of polygons.
 - 2.3.7. Area and perimeter of polygons.
- 2.4. Circles and circles
 - 2.4.1. Definition of circumference.
 - 2.4.2. Elements of the circumference.
 - 2.4.3. Angles
 - 2.4.4. Arches
 - 2.4.5. Relationship between two circles
 - 2.4.6. Circumference and area of a circle.

Unit III

- 3.1. Introduction to trigonometric functions.
 - 3.1.1. Definition of trigonometric functions.
 - 3.1.2. Inverse trigonometric functions.
 - 3.1.3. Signs of trigonometric functions.
 - 3.1.4. Unit circle.



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- 3.1.5. Graphs of trigonometric functions.
- 3.2. Trigonometric identities.
 - 3.2.1. From the Pythagorean theorem.
 - 3.2.2. From the sum of angles.
 - 3.2.3. Of the difference of angles.
 - 3.2.4. Double an angle.
 - 3.2.5. Of the half of an angle.
 - 3.2.6. Triple of an angle.
 - 3.2.7. Sum and difference of sine and cosine.
 - 3.2.8. Procedure to show that an equation is an identity.
- 3.3. Trigonometric equations.
 - 3.3.1. Solution of trigonometric equations using identities.
 - 3.3.2. Solution of trigonometric equations using calculator.



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