Class 6 - Chapter 12 Triangles

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MATHEMATICS
CLASS VI
R.D. SHARMA

DHANPAT RAI PUBLICATIONS

Author: R.D. Sharma
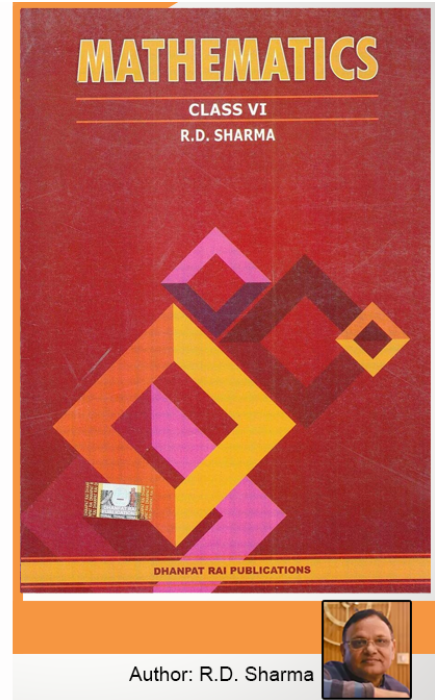
RD Sharma Solutions for Class 6 Maths Chapter 12–Triangles

Class 6: Maths Chapter 12 solutions. Complete Class 6 Maths Chapter 12 Notes.

RD Sharma Solutions for Class 6 Maths Chapter 12–Triangles

RD Sharma 6th Maths Chapter 12, Class 6 Maths Chapter 12 solutions

Exercise 12.1 page: 12.4

1. Take three non-collinear points A, B and C on a page of your notebook. Join AB, BC and CA. What figure do you get? Name the triangle. Also, name
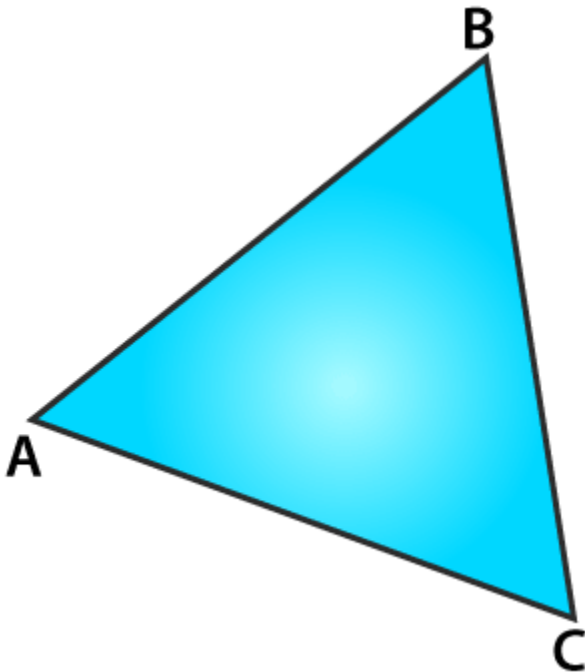
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(i) the side opposite to ∠ B

(ii) the angle opposite to side AB

(iii) the vertex opposite to side BC

(iv) the side opposite to vertex B.

Solution:

Consider A, B and C as three non-collinear points and join them.

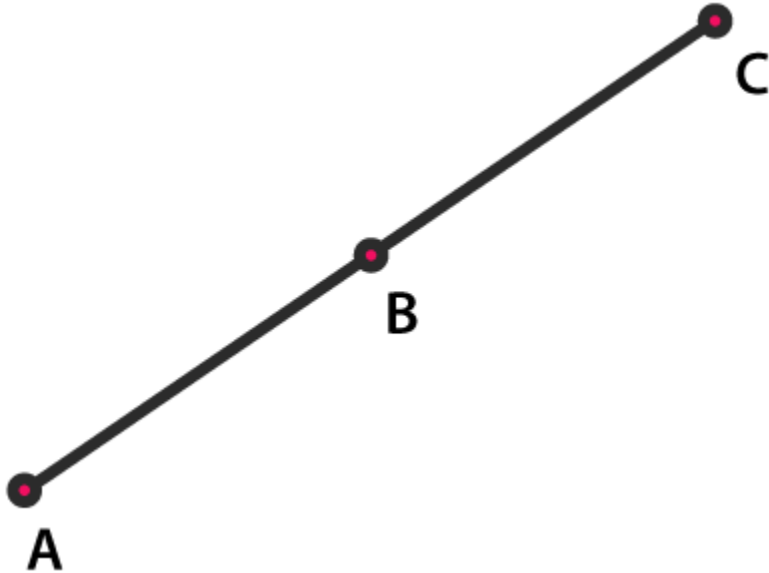By joining the points we obtain a triangle having three sides which is the △ ABC

(i) The side opposite to ∠ B is AC.

(ii) The angle opposite to side AB is ∠ ACB.

(iii) The vertex opposite to side BC is A.

(iv) The side opposite to vertex B is AC.

2. Take three collinear points A, B and C on a page of your notebook. Join AB, BC and CA. Is the figure a triangle? If not, why?

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Solution:

Consider A, B and C as three collinear points and join AB, BC and CA.


We get a straight line which has only one side and not a triangle. The straight line is not a closed figure whereas the triangle is a closed figure which has three sides.

3. Distinguish between a triangle and its triangular region.

Solution:

The triangle is defined as a plane figure which is formed by three line segments which are non-parallel whereas a triangular region is the region which is inside a triangle.

The figure given below represents a triangle with a triangular region which is shaded.
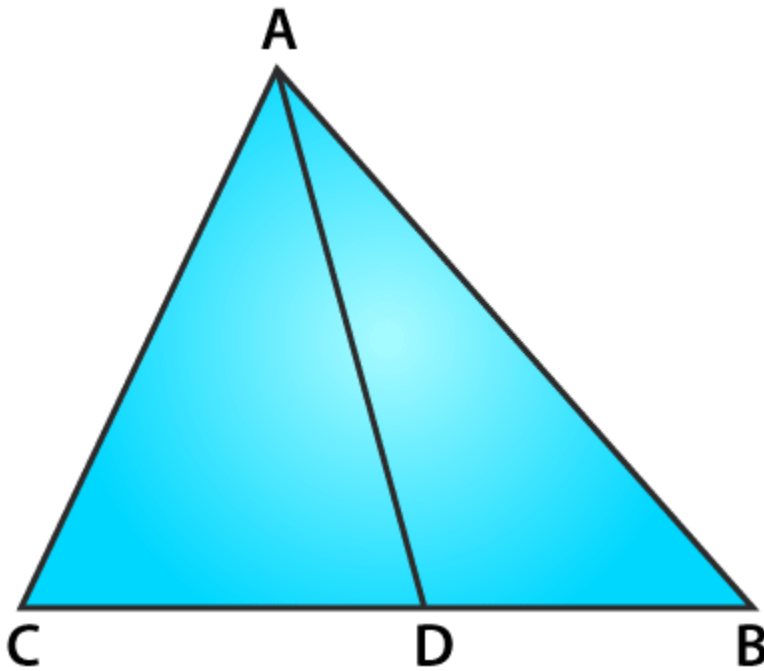
C

TRIANGULAR
REGION

A   B
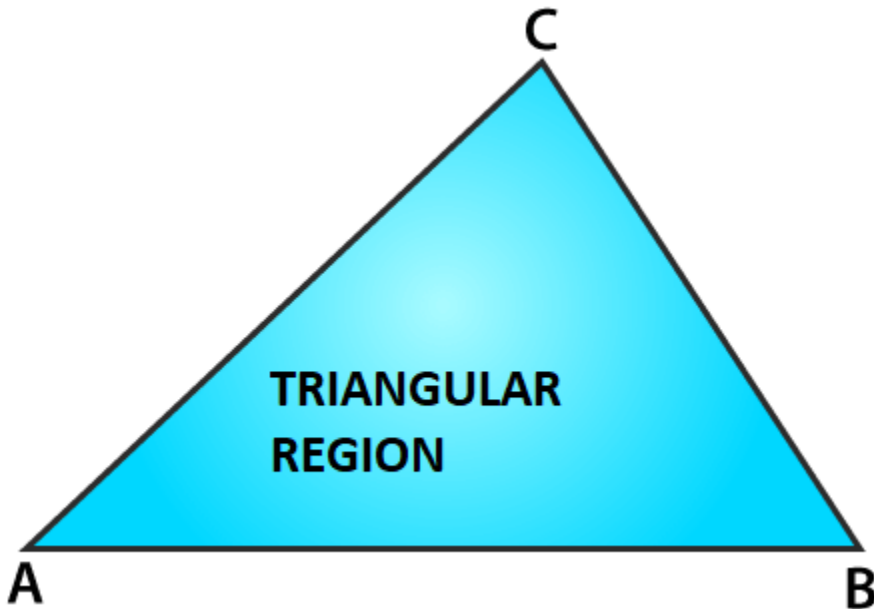
**4. In Fig. 12.11, D is a point on side BC of a △ ABC. AD is joined. Name all the triangles that you can observe in the figure. How many are they?**

Solution:

The triangles which are present in the figure are △ ACD, △ ADB and △ ABC. There are three triangles present in the given figure.

5. In Fig. 12.12, A, B, C and D are four points, and no three points are collinear. AC and BD intersect at O. There are eight triangles that you can observe. Name all the triangles.
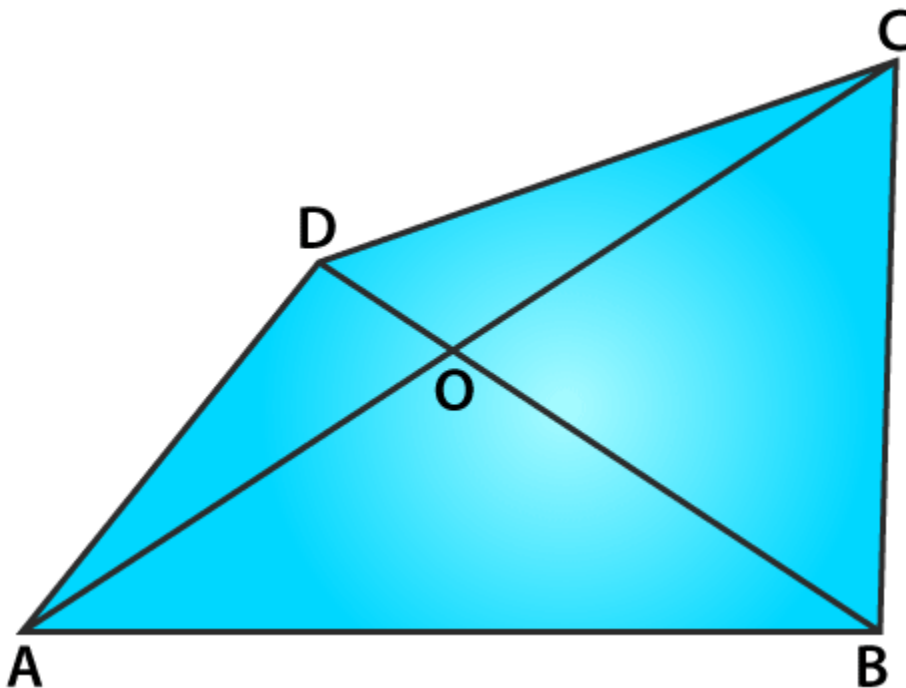
Solution:

The triangles which are present in the figure are △ ABC, △ ABD, △ ABO, △ BCO, △ DCO, △ AOD, △ ACD and △ BCD. There are about eight triangles which are present in the figure.

6. What is the difference between a triangle and triangular region?

Solution:

The triangle is defined as a plane figure which is formed by three line segments which are non-parallel whereas a triangular region is the region which is inside a triangle.

The figure given below represents a triangle with a triangular region which is shaded.
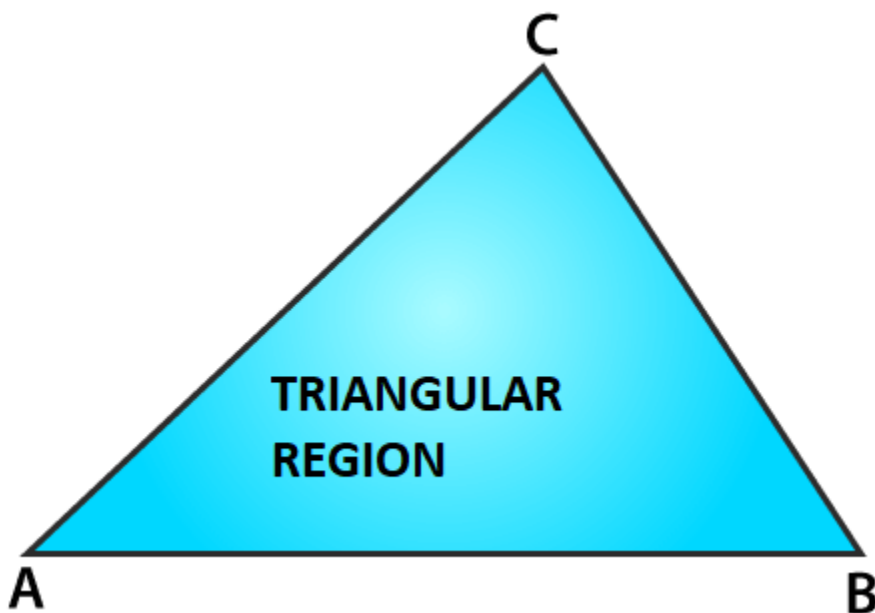
7. Explain the following terms:

(i) Triangle

(ii) Parts or elements of a triangle

(iii) Scalene triangle

(iv) Isosceles triangle

(v) Equilateral triangle

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(vi) Acute triangle

(vii) Right triangle

(viii) Obtuse triangle

(ix) Interior of a triangle

(x) Exterior of a triangle.

Solution:

(i) Triangle – A plane figure formed by three non-parallel line segments is called a triangle.

(ii) Parts or elements of a triangle – The three sides, three angles and three vertices of a triangles are called parts or elements of a triangle.

(iii) Scalene triangle – A triangle in which all the sides are different is called a scalene triangle.

(iv) Isosceles triangle – A triangle whose two sides are equal is called an isosceles triangle.

(v) Equilateral triangle – A triangle whose all sides are equal to one another is called an equilateral triangle.

(vi) Acute triangle – A triangle whose all the angles are acute is called acute-angled triangle or an acute triangle.

(vii) Right triangle – A triangle whose one angle is a right angle is called a right-angled triangle or a right triangle.

(viii) Obtuse triangle – A triangle whose one angle is obtuse is called an obtuse-angled triangle or an obtuse triangle.

(ix) Interior of a triangle – The region which lies inside the triangle is called the interior of a triangle.

(x) Exterior of a triangle – The region which lies outside the triangle is called the exterior of a triangle.

8. In Fig. 12.13, the length (in cm) of each side has been indicated along the side. State for each triangle whether it is scalene, isosceles or equilateral.
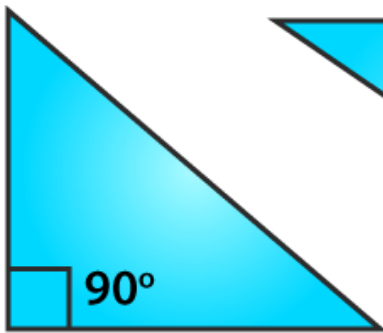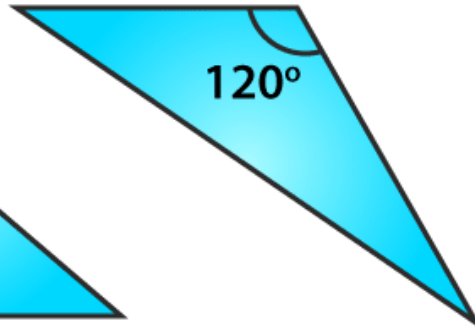
(i)   (ii)   (iii)

(iv)   (v)
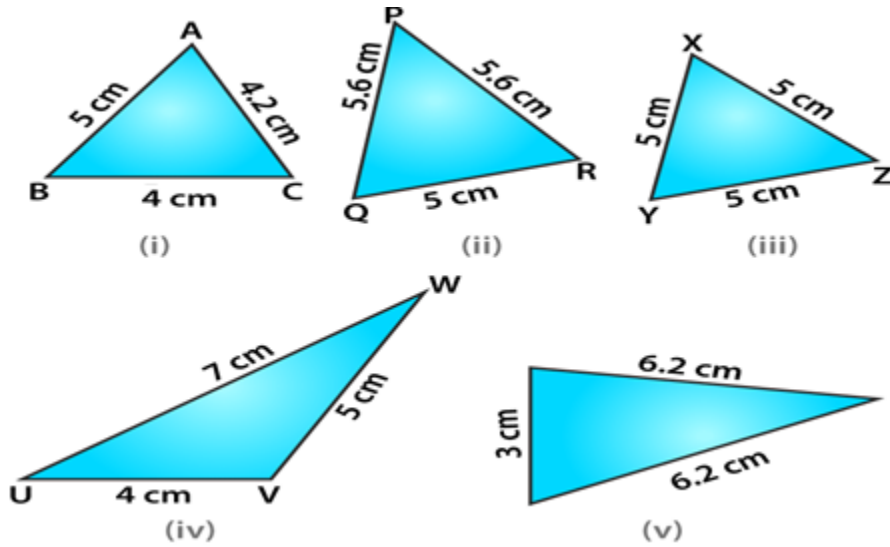
Solution:

(i) It is a scalene triangle having sides of different lengths.

(ii) It is an isosceles triangle having two sides of same length i.e. 5.6 cm.

(iii) It is an equilateral triangle having all sides of same length i.e. 5 cm.

(iv) It is a scalene triangle having sides of different lengths.

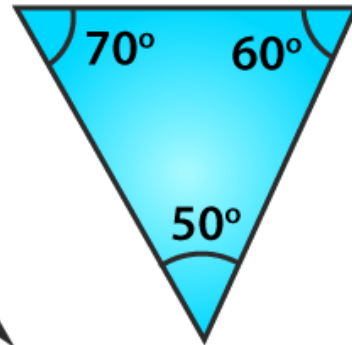(v) It is an isosceles triangle having two sides of same length i.e. 6.2 cm.

9. In Fig. 12.14, there are five triangles. The measures of some of their angles have been indicated. State for each triangle whether it is acute, right or obtuse.

(i)   (ii)   (iii)
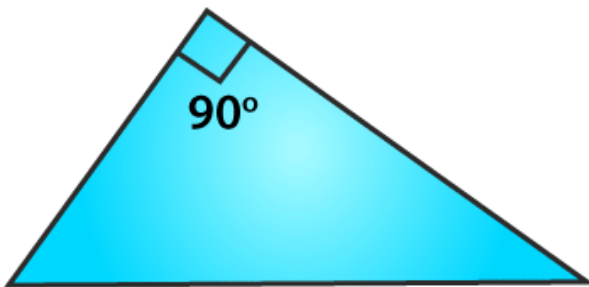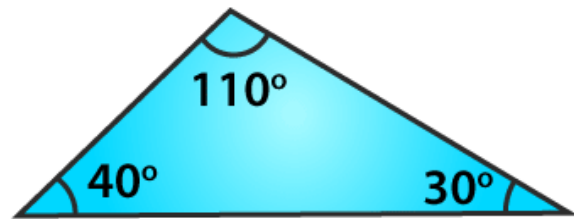
(iv)   (v)

Solution:

(i) It is a right triangle with one angle as 90º.

(ii) It is an obtuse triangle with one angle as 120º.

(iii) It is an acute triangle with one angle as 60º.

(iv) It is a right triangle with one angle as 90º.

(v) It is an obtuse triangle with one angle as 110º.

10. Fill in the blanks with the correct word/symbol to make it a true statement:

(i) A triangle has ……. sides.

(ii) A triangle has …….. verticals.

(iii) A triangle has …….. angles.

(iv) A triangle has …….. parts.

(v) A triangle whose no two sides are equal is known as ……..

(vi) A triangle whose two sides are equal is known as ……..

(vii) A triangle whose all the sides are equal is known as …….

(viii) A triangle whose one angle is a right angle is known as ……..

(ix) A triangle whose all the angles are of measures less than 90° is known as …….

(x) A triangle whose one angle is more than 90° is known as …….

Solution:

(i) A triangle has three sides.

(ii) A triangle has three verticals.

(iii) A triangle has three angles.

(iv) A triangle has six parts.

(v) A triangle whose no two sides are equal is known as scalene.

(vi) A triangle whose two sides are equal is known as isosceles.

(vii) A triangle whose all the sides are equal is known as equilateral.

(viii) A triangle whose one angle is a right angle is known as right triangle.

(ix) A triangle whose all the angles are of measures less than 90° is known as acute triangle.

(x) A triangle whose one angle is more than 90° is known as obtuse triangle.

11. In each of the following, state if the statement is true (T) or false (F):

(i) A triangle has three sides.

(ii) A triangle may have four vertices.

(iii) Any three line-segments make up a triangle.

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(iv) The interior of a triangle includes its vertices.

(v) The triangular region includes the vertices of the corresponding triangle.

(vi) The vertices of a triangle are three collinear points.

(vii) An equilateral triangle is isosceles also.

(viii) Every right triangle is scalene.

(ix) Each acute triangle is equilateral.

(x) No isosceles triangle is obtuse.

Solution:

(i) True

(ii) False. A triangle has three vertices.

(iii) False. The three line segments which are joined by three non collinear points form a triangle.

(iv) False. Vertices lie on the triangle.

(v) True

(vi) False. The vertices of a triangle are three non-collinear points.

(vii) True

(viii) False. Right triangle can also be an isosceles triangle.

(ix) False. Each acute triangle is not equilateral.

(x) False. An isosceles triangle can be obtuse.

Objective Type Questions page: 12.7

Mark the correct alternative in each of the following:

1. Total number of parts of a triangle is

(a) 3

(b) 6

(c) 9

(d) 1

Solution:

The option (b) is the correct answer.

Total number of parts of a triangle is 6.

2. A perpendicular drawn from a vertex to the opposite side of a triangle is known as

(a) an altitude

(b) a median

(c) an angle bisector

(d) a bisector

Solution:

The option (a) is the correct answer.

A perpendicular drawn from a vertex to the opposite side of a triangle is known as an altitude.

3. A triangle

(a) may not have an altitude

(b) can have at most 3 altitudes

(c) has three altitudes

(d) has only one altitude

Solution:

The option (c) is the correct answer.

A triangle has three altitudes.

4. Line segments joining the vertices to the mid-points of the opposite sides of a triangle are known as

(a) medians

(b) altitudes

(c) heights

(d) angle bisectors

Solution:

The option (a) is the correct answer.

Line segments joining the vertices to the mid-points of the opposite sides of a triangle are known as medians.

5. A triangle whose no two sides are equal is known as

(a) an acute triangle

(b) a scalene triangle

(c) an isosceles triangle

(d) an equilateral triangle

Solution:

The option (b) is the correct answer.

A triangle whose no two sides are equal is known as a scalene triangle.

6. A triangle whose two sides are equal is known as

(a) acute triangle

(b) an isosceles triangle

(c) a scalene triangle

(d) an isosceles triangle

Solution:

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The option (b) is the correct answer.

A triangle whose two sides are equal is known as an isosceles triangle.

7. A triangle whose all sides are equal is called

(a) an equilateral triangle

(b) an acute triangle

(c) a right triangle

(d) an isosceles triangle

Solution:

The option (a) is the correct answer.

A triangle whose all sides are equal is called an equilateral triangle.

8. The sum of the length of sides of a triangle is known as its

(a) area

(b) height

(c) perimeter

(d) region

Solution:

The option (c) is the correct answer.

The sum of the length of sides of a triangle is known as its perimeter.

9. A triangle having all sides of different length is known as

(a) scalene triangle

(b) isosceles triangle

(c) an equilateral triangle

(d) an acute triangle

Solution:

The option (a) is the correct answer.

A triangle having all sides of different length is known as scalene triangle.

10. A triangle whose one angle is more than 90° is called

(a) a scalene triangle

(b) a right triangle

(c) an acute triangle

(d) an obtuse triangle

Solution:

The option (d) is the correct answer.

A triangle whose one angle is more than 90° is called an obtuse triangle.

—————X—————

Chapterwise RD Sharma Solutions for Class 6 Maths :

About RD Sharma

RD Sharma i*sn't the kind of author you'd bump into at lit fests. But his bestselling books have helped many* CBSE *students lose their dread of* maths. *Sunday Times profiles the tutor turned internet star*

He dreams of algorithms that would give most people nightmares. And, spends every waking hour thinking of ways to explain concepts like 'series solution of linear differential equations'. Meet Dr Ravi Dutt Sharma — mathematics teacher and author of 25 reference books — whose name evokes as much awe as the subject he teaches. And though students have used his thick tomes for the last 31 years to ace the dreaded maths exam, it's only recently that a spoof video turned the tutor into a YouTube star.

R D Sharma had a good laugh but said he shared little with his on-screen persona except for the love for maths. "I like to spend all my time thinking and writing about maths problems. I find it relaxing," he says. When he is not writing books explaining mathematical concepts for classes 6 to 12 and engineering students, Sharma is busy dispensing his duty as vice-principal and head of department of science and humanities at Delhi government's Guru Nanak Dev Institute of Technology.

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