



# MATHS

## NCERT - NCERT MATHEMATICS(TAMIL ENGLISH)

### THE ELEMENTS OF GEOMETRY

#### Examples

1. If A,B,I C are three points on a line and B lies between A and C, then prove that  $AC-AB = BC$



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2. Prove that an equilateral triangle can be constructed on any given line segment.



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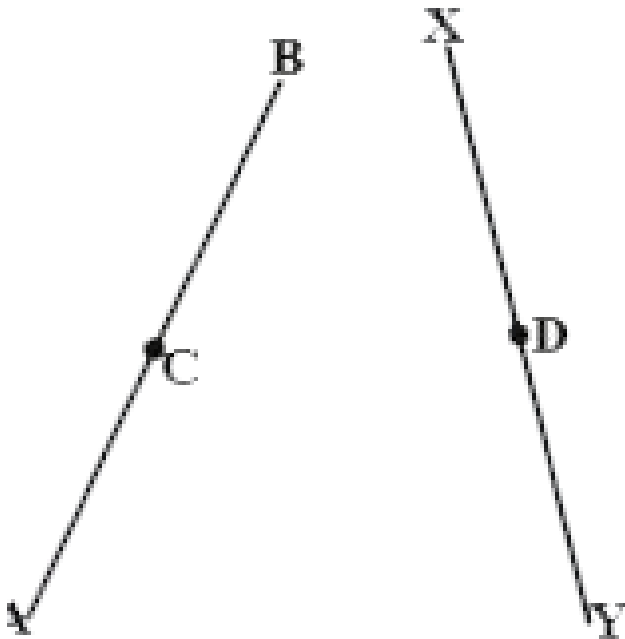
3. Two distinct lines cannot have more than one point in common.



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4. In the adjacent figure, we have  $AC = XD$ ,  $C$  and  $D$  are mid points of  $AB$  and  $XY$  respectively.

Show that  $AB = XY$ .



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## Try This

1. Can you give any two axioms from your daily life.



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## Exercise 3 1

1. Answer the following:

(i) How many dimensions a solid has?

(ii) How many books are there in Euclid's Elements?

(iii) Write the numbers of faces of a cube and cuboid?

(iv) What is sum of interior angles of a triangle?

(v) Write three un-defined terms of geometry?



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2. State whether the following statements are true or false? Also give reasons for your answers.

a) Only one line can pass through a given point.

b) All right angles are equal.

c) Circles with same radii are equal.

d) A line segment can be extended on its both sides endlessly to get a straight line.



In the figure,  $AB > AC$

e) From the figure,  $AB > AC$ .



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3. In the figure given below, show that length

$$AH > AB + BC + CD.$$



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4. If a point Q lies between two points P and R

such that  $PQ = QR$ , prove that  $PQ = \frac{1}{2} PR$ .



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5. What is a conjecture ? Give an example for it.



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6. Mark two points P and Q. Draw a line through P and Q.

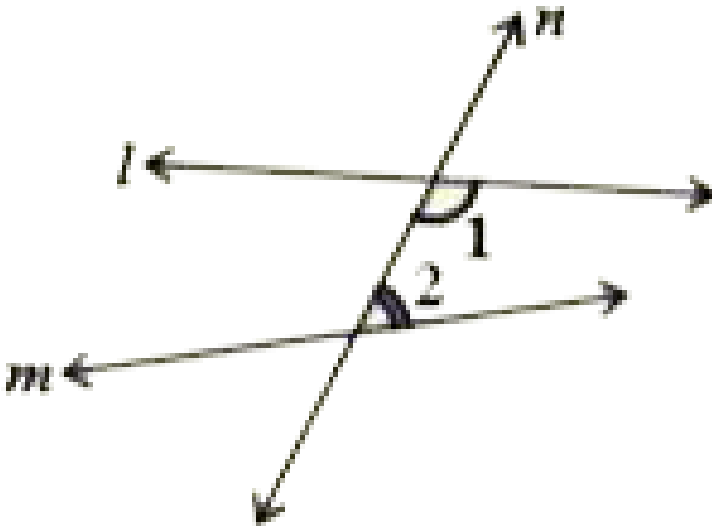
Now how many lines are parallel to PQ, can you draw?



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7. In the adjacent figure, a line  $n$  falls on lines 1 and  $m$  such that the sum of the interior angles 1 and 2 is less than  $180^\circ$ , then what can you say about lines 1 and  $m$ .



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8. In the adjacent figures, If  $\angle 1 = \angle 3$ ,  $\angle 2 = \angle 4$  and  $\angle 3 = \angle 4$  write the relations between  $\angle 1$  and  $\angle 2$  using an Euclid's postulate.

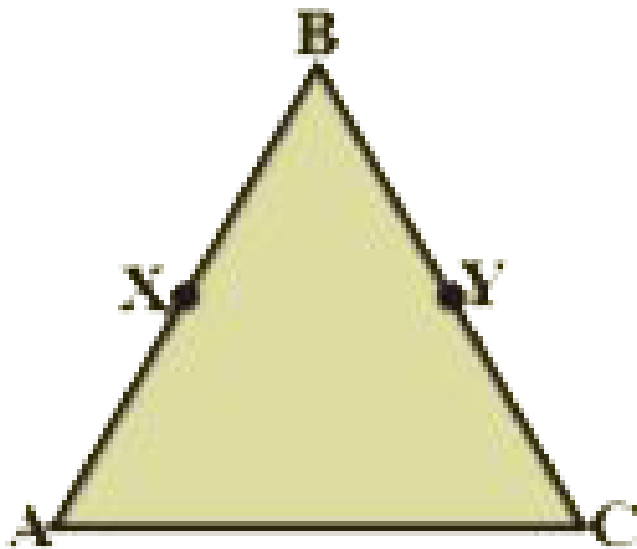


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9. In the adjacent figure, we have

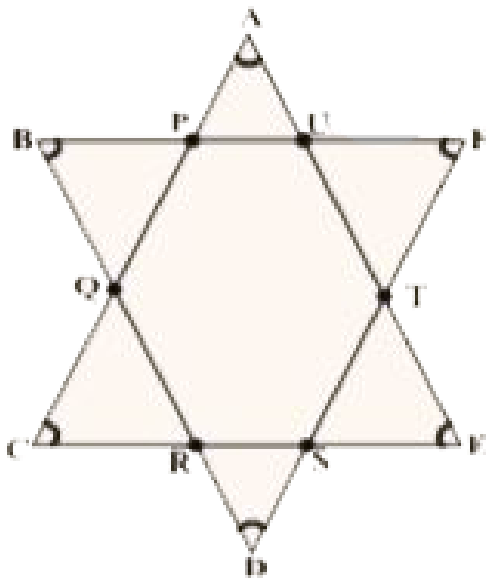
$$BX = \frac{1}{2}AB, BY = \frac{1}{2}BC \text{ and } AB=BC. \text{ Show}$$

that  $BX = BY$ .



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1. What is the measure of  $\angle A + \angle B + \angle C + \angle D + \angle E + \angle F$  in the figure given below. Give reason to your answer.



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2. If the diagonal of a square is 'a' units, what is the diagonal of the square, whose area is double that of the first square?



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