



MATHS

NCERT - NCERT Maths(TELUGU)

CONSTRUCTION OF TRIANGLES

Exercise

1. Construct $\triangle ABC$ in which $AB = 5.5$ cm , $BC = 6.5$ cm and $CA = 7.5$ cm.

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2. Construct $\triangle NIB$ in which $NI = 5.6$ cm, $IB = 6$ cm and $BN = 6$ cm . What type of triangle is this?

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3. Construct an equilateral $\triangle APE$ with side 6.5 cm.

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4. Construct a $\triangle XYZ$ in which $XY = 6$ cm , $YZ = 8$ cm and $ZX = 10$ cm.What type of triangle is this?

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5. Construct $\triangle ABC$ in which $AB=4$ cm, $BC=7$ cm and $CA=3$ cm. What type of triangle is this?

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6. Sushant prepared a problem. Construct $\triangle XYZ$ in which $XY = 2$ cm , $YZ = 8$ cm and $XZ = 4$ cm. He also drew the rough sketch as shown is figure (i).Reading the problem, Srija told Sushant that it would not be possible

to draw the triangle with the given measurements. However, Sushant started to draw the diagram as shown in figure (ii). Check whether Sushant can draw the triangle. If not why? Discuss with your friends. What property of triangles supports Srija's idea?

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7. Construct $\triangle PEN$ with $PE = 4$ cm, $EN = 5$ cm and $NP = 3$ cm. If you draw circles instead of arcs how many points of intersection do you get? How many triangles with given measurements are possible? Is this true in case of every triangle?

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8. Draw $\triangle CAR$ in which $CA = 8$ cm, $\angle A = 60^\circ$ and $AR = 8$ cm. Measure $\angle CR$, $\angle R$ and $\angle C$. What kind of triangle is this?

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9. Construct $\triangle ABC$ in which $AB = 5\text{cm}$, $\angle B = 45^\circ$ and $BC = 6\text{cm}$

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10. Construct $\triangle PQR$ such that $\angle R = 100^\circ$, $QR = RP = 5.4\text{ cm}$.

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11. Construct a triangle with angles 105° and 95° and a side of length of your choice. Could you construct the triangle? Discuss and justify.

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12. Construct $\triangle NET$ with measurement $NE = 6.4\text{cm}$, $\angle N = 50^\circ$ and $\angle E = 100^\circ$.

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13. Construct $\triangle T E N$ such that $T E = 3 \text{ cm}$, $\angle E = 90^\circ$ and $N E = 4 \text{ cm}$.

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14. Construct $\triangle P Q R$ such that $\widehat{Q} R = 6 \text{ cm}$, $\angle Q = \angle R = 60^\circ$. Measure the other two sides of the triangle and name the triangle.

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15. Construct $\triangle R U N$ in which $R N = 5 \text{ cm}$, $\angle R = \angle N = 45^\circ$. Measure the other angle and other sides. Name the triangle.

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16. Construct a $\sphericalangle P Q R$, right angled at R , hypotenuse is 5 cm and one of its adjacent sides is 4 cm .

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17. Construct a right angled $\triangle ABC$ such that $\angle B = 90^\circ$, $AB = 8$ cm and $AC = 10$ cm.

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18. Construct $\triangle ABC$ in which $AB = 4.5$ cm, $AC = 4.5$ cm and $\angle B = 50^\circ$. Check whether you get two triangles.

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19. Construct $\triangle XYZ$ such that $\widehat{X}Y = 4.5$ cm, $XZ = 3.5$ cm and $\angle Y = 70^\circ$. Check whether you get two triangles.

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20.

Construct

$\triangle ANR$ with the sides AN and AR of 5 cm and 6 cm respectively and $\angle N = 100^\circ$. Check whether you get two triangles.



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21. Construct the triangle with the measurements: $\triangle ABC$, $BC = 6.5\text{ cm}$, $CA = 6.3\text{ cm}$, $AB = 4.8\text{ cm}$.



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22. Construct the triangle with the measurements:

$\triangle PQR$, $PQ = 8\text{ cm}$, $QR = 7.5\text{ cm}$, $\angle PQR = 85^\circ$



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23. Construct the triangle with the measurements:

$\triangle XYZ, XY=6.2, YZ=5\text{cm}, ZX=5\text{cm}$. what type of triangle is this?

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24. Construct the triangle with the measurements:

$\triangle ABC, AB = 4.8\text{cm}, AC = 4.8\text{cm}, BC=6.5\text{cm}$

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25. Construct the triangle with the measurements: $\triangle MNP, \angle N=90,$

$MP=11.4\text{cm}, MN=7.3\text{cm}$.

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26. Construct the triangle with the measurements:

$\triangle RKS, RK=KS=SR=6.6\text{cm}$





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27. Construct the triangle with the measurements:

$\sphericalangle RKS, RK=KS=SR=6.6\text{cm}$



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Example

1. Construct a $\triangle PQR$ with sides $PQ = 4\text{ cm}, QR = 5\text{ cm}$ and $RP = 7\text{ cm}$.



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2. Construct $\triangle ABC$ in which $AB = 4\text{ cm}, BC = 5\text{ cm}$ and $\angle B = 50^\circ$



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3. Construct $\triangle MAN$ with $MA = 4\text{ cm}$, $\angle M = 45^\circ$ and $\angle A = 100^\circ$.

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4. Construct $\triangle ABC$, right-angled at A, and $BC = 6\text{ cm}$, $AB = 5\text{ cm}$.

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5. Construct $\triangle ABC$ such that $AB = 5\text{ cm}$, $AC = 4\text{ cm}$, $\angle B = 40^\circ$.

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Try This

1. Construct a triangle with the same measurements given in above example taking PQ as base. Are the triangles congruent?

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2. Construct a $\triangle PET$, $PE = 4.5$ cm, $ET = 5.4$ cm and $TP = 6.5$ cm in your notebook. Now construct $\triangle ABC$, $AB = 5.4$ cm, $BC = 4.5$ cm and $CA = 6.5$ cm on a piece of paper. Cut it out and place it on the figure you have constructed in your notebook. Are the triangles congruent? Write your answer using mathematical notation.

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3. Construct a triangle with angles 105° and 95° and a side of length of your choice. Could you construct the triangle? Discuss and justify.

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4. Construct a triangle with two sides of length of your choice and the non-included angle as an obtuse angle. Can you draw two triangles in this solution?

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Exercise 1

1. Construct $\triangle ABC$ in which $AB = 5.5$ cm , $BC = 6.5$ cm and $CA = 7.5$ cm.

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2. Construct $\triangle NIB$ in which $NI = 5.6$ cm, $IB = 6$ cm and $BN = 6$ cm . What type of triangle is this?

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3. Construct an equilateral $\triangle APE$ with side 6.5 cm.

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4. Construct a $\triangle XYZ$ in which $XY = 6 \text{ cm}$, $YZ = 8 \text{ cm}$ and $ZX = 10 \text{ cm}$. What type of triangle is this?

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5. Construct $\triangle ABC$ in which $AB=4\text{cm}$, $BC=7\text{cm}$ and $CA=3\text{cm}$. What type of triangle is this?

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6. Construct $\triangle PEN$ with $PE = 4 \text{ cm}$, $EN = 5 \text{ cm}$ and $NP = 3 \text{ cm}$. If you draw circles instead of arcs how many points of intersection do you get? How many triangles with given measurements are possible? Is this true in case of every triangle?

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1. Draw $\triangle CAR$ in which $CA = 8\text{cm}$, $\angle A = 60^\circ$ and $AR = 8\text{cm}$. Measure $\angle CR$, $\angle R$ and $\angle C$. What kind of triangle is this?

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2. Construct $\triangle ABC$ in which $AB = 5\text{cm}$, $\angle B = 45^\circ$ and $BC = 6\text{cm}$

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3. Construct $\triangle PQR$ such that $\angle R = 100^\circ$, $QR = RP = 5.4\text{ cm}$.

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4. Construct $\triangle TEN$ such that $TE = 3\text{cm}$, $\angle E = 90^\circ$ and $NE = 4\text{ cm}$.

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Exercise 3

1. Construct $\triangle NET$ with measurement $NE = 6.4\text{cm}$, $\angle N = 50^\circ$ and $\angle E = 100^\circ$.

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2. Construct $\triangle PQR$ such that $QR = 6\text{cm}$, $\angle Q = \angle R = 60^\circ$. Measure the other two sides of the triangle and name the triangle.

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3. Construct $\triangle RUN$ in which $RN = 5\text{cm}$, $\angle R = \angle N = 45^\circ$. Measure the other angle and other sides. Name the triangle.

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Exercise 4

1. Construct a right angled $\triangle ABC$ such that $\angle B = 90^\circ$, $AB = 8$ cm and $AC = 10$ cm.

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2. Construct a $\triangle PQR$, right angled at R , hypotenuse is 5 cm and one of its adjacent sides is 4 cm.

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3. Construct an isosceles right angled $\triangle XYZ$ in which $\angle Y = 90^\circ$ and the two sides are 5 cm each.

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1. Construct $\triangle ABC$ in which $AB = 4.5\text{cm}$, $AC = 4.5\text{cm}$ and $\angle B = 50^\circ$. Check whether you get two triangles.

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2. Construct $\triangle XYZ$ such that $\widehat{X} = 4.5\text{cm}$, $XZ = 3.5\text{cm}$ and $\angle Y = 70^\circ$. Check whether you get two triangles.

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3. Construct $\triangle ANR$ with the sides AN and AR of $\leq n > 5\text{cm}$ and 6cm respectively. $\angle N$ is 100° . Check whether you get two triangles.

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4. Construct $\triangle PQR$ in which $QR = 5.5\text{cm}$, $QP = 5.5\text{cm}$ and $\angle Q = 60^\circ$. Measure RP. What kind of triangle is this?

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5. Construct the triangle with the measurement given in the following table .

Triangle	Measurements
$\triangle ABC$	$BC = 6.5\text{ cm}$, $CA = 6.3\text{ cm}$, $AB = 4.8\text{ cm}$.
$\triangle PQR$	$PQ = 8\text{ cm}$, $QR = 7.5\text{ cm}$, $\angle PQR = 85^\circ$
$\triangle XYZ$	$XY = 6.2\text{ cm}$, $\angle Y = 130^\circ$, $\angle Z = 70^\circ$
$\triangle ABC$	$AB = 4.8\text{ cm}$, $AC = 4.8\text{ cm}$, $\angle B = 35^\circ$
$\triangle MNP$	$\angle N = 90^\circ$, $MP = 11.4\text{ cm}$, $MN = 7.3\text{ cm}$.
$\triangle RKS$	$RK = KS = SR = 6.6\text{ cm}$.
$\triangle PTR$	$\angle P = 65^\circ$, $PT = PR = 5.7\text{ cm}$.

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