MATHS

NCERT - NCERT Maths(Telugu)

GEOMETRICAL CONSTRUCTIONS

Examples

1. Draw the perpendicular bisector of a given line segment AB and write justification.

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2. Construct the bisector of a given angle ABC.

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3. Draw a ray AB with initial point A and construct a ray AC such that $\angle BAC$ = 60º.

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4. Construct a $\triangle ABC$ given BC = 5 cm., AB + AC = 8 cm. and $\angle ABC = 60°$.

5. Construct ΔABC in which BC = 4.2 cm, $\angle B = 60°$ and AB – AC = 1.6 cm.

6. Construct $\triangle ABC$ in which BC = 5 cm, $\angle B = 45°$ and AC – AB = 1.8 cm.

7. Construct a triangle ABC, in which $\angle B = 60°$, $\angle C = 45°$ and AB + BC + CA = 11 cm.

8. Construct a segment of a circle on a chord of length 7cm. and containing an angle of $60°$.
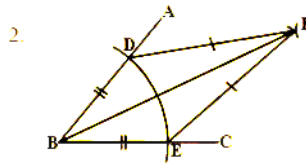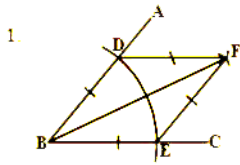
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Try This

1. Observe the sides, angles and diagonals of quadrilateral BEFD. Name the figures given

below and write properties of figures.

2. Draw a circle, Identify a point on it. Cut arcs on the circle with the length of the radius in succession. How many parts can the circle be divided into? Give reason.

3. Can you draw the triangle with the same measurements in alternate way?

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4. What happen if the angle in the circle segment is right angle? What kind of segment do you obtain? Draw the figure and give reason.

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5. Can you construct the triangle ABC with the same measures by changing the base angle $\angle C$ instead of $\angle B$? Draw a rough sketch and construct it

6. Can you construct a triangle ABC with BC = 6 cm, $\angle B = 60°$ and AB + AC = 5cm.? If not, give reasons.

7. Draw a circle, Identify a point on it. Cut arcs on the circle with the length of the radius in succession. How many parts can the circle be divided into? Give reason.

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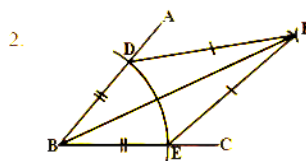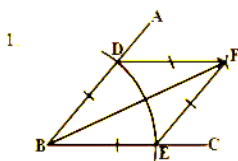**8.** Can you draw the triangle with the same measurements in alternate way?

▶ **Watch Video Solution**

9. What happen if the angle in the circle segment is right angle? What kind of segment do you obtain? Draw the figure and give reason.

10. Observe the sides, angles and diagonals of quadrilateral BEFD. Name the figures given below and write properties of figures.

11. Draw a circle, Identify a point on it. Cut arcs on the circle with the length of the radius in succession. How many parts can the circle be divided into? Give reason.

12. Can you draw the triangle with the same measurements in alternate way?

13. What happen if the angle in the circle segment is right angle? What kind of segment do you obtain? Draw the figure and give reason.

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Exercise 13 1

1. Construct the following angles at the initial point of a given ray and justify the construction. $90°$

2. Construct the following angles using ruler and compass and verify by measuring them by a protractor. $30°$

3. Construct an equilateral triangle, given its side of length of 4.5 cm and justify the construction.

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4. Construct an isosceles triangle, given its base and base angle and justify the construction.

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5. Construct the following angles at the initial point of a given ray and justify the construction. $90°$

> ▶ **Watch Video Solution**

6. Construct the following angles at the initial point of a given ray and justify the construction. $45°$

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7. Construct the following angles using ruler and compass and verify by measuring them by a protractor. 30°

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8. Construct the following angles using ruler and compass and verify by measuring them by a protractor. $\left(22\dfrac{1}{2}\right)^\circ$

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9. Construct the angle using ruler and compasses. Write the steps of construction: $15°$

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10. Construct the angle with using protractor construction : $75°$

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11. Draw the angle using a protractor: $105°$.

> ▶ **Watch Video Solution**

12. Construct the following angles using ruler and compass and verify by measuring them by a protractor. $135°$

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13. Construct an equilateral triangle, given its side of length of 4.5 cm and justify the construction.

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14. Construct an isosceles triangle, given its base and base angle and justify the construction.

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1. Construct ΔABC in which BC=7 cm, $\angle B = 75°$ and AB+AC= 12 cm .

2. Construct ΔPQR in which QR= 8 cm, $\angle Q = 60°$ and PQ – PR = 3.5 cm

3. Construct a triangle ABC, in which $\angle B = 60°$, $\angle C = 45°$ and AB + BC + CA = 11 cm.

4. Construct a right triangle whose base is 7.5cm. and sum of its hypotenuse and other side is 15cm.

5. Construct a segment of a circle on a chord of length 5 cm containing the following angles

90°

6. Construct $\triangle ABC$ in which BC = 4.2 cm, $\angle B = 60^{\circ}$ and AB – AC = 1.6 cm.

7. Construct $\triangle PQR$ in which QR= 8 cm, $\angle Q = 60°$ and PQ – PR = 3.5 cm

8. Construct $\triangle XYZ$ in which $\angle Y = 30°$, $\angle Z = 60°$ and XY + YZ + ZX = 10 cm

9. Construct a right triangle whose base is 7.5cm. and sum of its hypotenuse and other side is 15cm.

10. Construct a segment of a circle on a chord of length 5 cm containing the following angles 90°

11. Construct a segment of a circle on a chord

of length 5 cm containing the following angles

$45°$

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12. Construct a segment of a circle on a chord

of length 5 cm containing the following angles
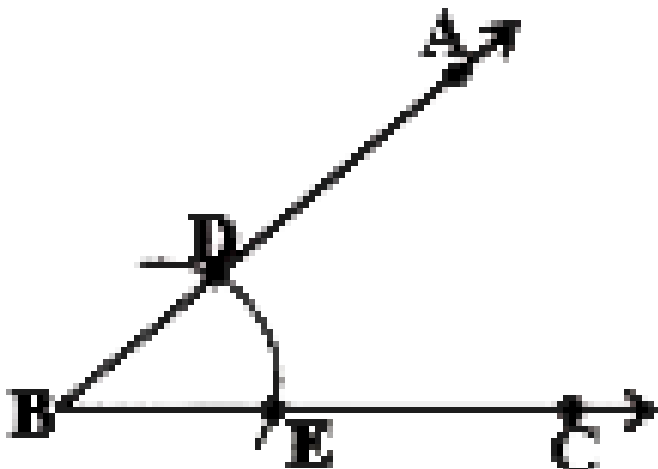
$120°$

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1. Draw the perpendicular bisector of a given line segment AB and write justification.

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2. Construct the bisector of a given angle ABC.

3. Draw a ray AB with initial point A and construct a ray AC such that $\angle BAC = 60^\circ$.

4. Construct a $\triangle ABC$ given BC = 5 cm., AB +

BC = 8 cm. and $\angle ABC = 60°$.

5. Construct $\triangle ABC$ in which BC = 4.2 cm,

$\angle B = 60°$ and AB – AC = 1.6 cm.

6. Construct $\triangle ABC$ in which BC = 5 cm, $\angle B = 45°$ and AC – AB = 1.8 cm.

7. Construct a triangle ABC, in which $\angle B = 60°$, $\angle C = 45°$ and AB + BC + CA = 11 cm.

8. Construct a segment of a circle on a chord of length 7cm. and containing an angle of $60°$.

9. Draw the perpendicular bisector of a given line segment AB and write justification.

10. Construct the bisector of a given angle ABC.

11. Draw a ray AB with initial point A and construct a ray AC such that $\angle BAC$ = 60º.

12. Construct a $\triangle ABC$ given BC = 5 cm., AB + BC = 8 cm. and $\angle ABC = 60°$.

13. Construct $\triangle ABC$ in which BC = 4.2 cm, $\angle B = 60°$ and AB – AC = 1.6 cm.

14. Construct $\triangle ABC$ in which BC = 5 cm, $\angle B = 45°$ and AC – AB = 1.8 cm.

15. Construct a triangle ABC, in which $\angle B = 60°$, $\angle C = 45°$ and AB + BC + CA = 11 cm.

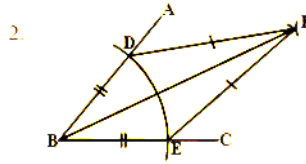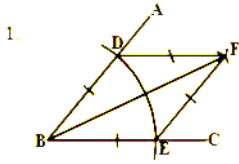**16.** Construct a segment of a circle on a chord of length 7cm. and containing an angle of $60°$.

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1. Observe the sides, angles and diagonals of quadrilateral BEFD. Name the figures given
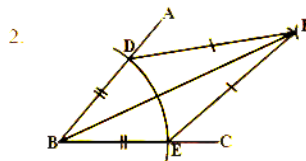
below and write properties of figures.

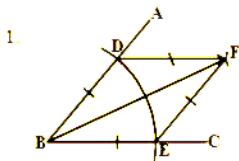**2.** Observe the sides, angles and diagonals of quadrilateral BEFD. Name the figures given below and write properties of figures.

1. Can you construct a triangle ABC with BC = 6 cm, $\angle B = 60°$ and AB + AC = 5 cm? If not, give reasons.

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2. Can you construct the triangle ABC with the same measures by changing the base angle

$\angle C$ instead of $\angle B$? Draw a rough sketch and construct it

3. Can you construct a triangle ABC with BC = 6 cm, $\angle B = 60°$ and AB + AC = 5cm.? If not, give reasons.

4. Can you construct the triangle ABC with the same measures by changing the base angle $\angle C$ instead of $\angle B$? Draw a rough sketch and construct it

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Exercise 13 1

1. Construct the following angles at the initial point of a given ray and justify the

construction. $90°$

2. Construct the following angles at the initial point of a given ray and justify the construction. $45°$

3. Construct the following angles using ruler and compass and verify by measuring them by

a protractor. $30°$

4. Construct the following angles using ruler and compass and verify by measuring them by a protractor. $\left(22\dfrac{1}{2}\right)°$

5. Construct the angle using ruler and compasses. Write the steps of construction:

$15°$

6. Construct the following angles using ruler and compasses. Write the steps of construction in each case.

$75°$

7. Draw the angle using a protractor: $105°$.

8. Construct the following angles using ruler and compass and verify by measuring them by a protractor. 135°

9. Construct an equilateral triangle, given its side of length of 4.5 cm and justify the construction.

10. Construct an isosceles triangle, given its base and base angle and justify the construction.

Exercise 13 2

1. Construct $\triangle ABC$ in which BC=7 cm, $\angle B = 75°$ and AB+AC= 12 cm .

2. Construct $\triangle PQR$ in which QR= 8 cm, $\angle Q = 60°$ and PQ – PR = 3.5 cm

3. Construct $\triangle XYZ$ in which $\angle Y = 30°$, $\angle Z = 60°$ and XY + YZ + ZX = 10 cm

4. Construct a right triangle whose base is 7.5cm. and sum of its hypotenuse and other side is 15cm.

5. Construct a segment of a circle on a chord of length 5 cm containing the following angles $90°$

6. Construct a segment of a circle on a chord of length 5 cm containing the following angles

$45°$

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7. Construct a segment of a circle on a chord of length 5 cm containing the following angles

$120°$

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