



# MATHS

## BOOKS - NAGEEN PRAKASHAN

### ENGLISH

#### CONSTRUCTIONS

#### Example Solution

1. Draw a line segment 6.0 cm long and draw its perpendicular bisector



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2. To construct an angle of  $60^\circ$  at the initial point of a given ray.



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3. Draw an angle of  $60^\circ$ . Draw its bisector.



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4. Construct a  $\triangle ABC$  in which  $AB = 4$  cm,  $BC = 5.2$  cm and  $CA = 4.5$  cm.



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5. Construct a  $\triangle ABC$  in which  $AB = 5$  cm,  $AC = 4.5$  cm and  $\angle A = 60^\circ$ .



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6. Construct a triangle ABC in which  $BC = 5\text{cm}$ ,  $\angle B = 60^\circ$  and  $\angle C = 45^\circ$ .



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7. Construct a right-angled triangle ABC in which  $\angle A = 90^\circ$ ,  $BC = 6\text{ cm}$  and  $AB = 4.8\text{ cm}$ .



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**8.** Construct an isosceles triangle whose base is 6 cm and altitude is 4 cm.



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**9.** Construct an isosceles triangle whose vertical angle is  $60^\circ$  and the altitude is 4.6 cm.



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**10.** Construct a  $\triangle ABC$  in which  $AB = 5$  cm,  $AC + BC = 8$  cm and  $\angle B = 60^\circ$ .



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**11.** Construct a  $\triangle ABC$  in which base  $BC = 5.2$  cm,  $\angle ABC = 50^\circ$  and  $AB - AC = 2$  cm.



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**12.** Construct  $\triangle ABC$  in which  $BC = 5.2$  cm,  
 $\angle B = 50^\circ$  and  $AC - AB = 2$  cm.



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**13.** Construct a  $\triangle ABC$  whose perimeter is  
10.5 cm and the base angles are  $60^\circ$  and  
 $45^\circ$ .



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**14.** Construct a  $\triangle ABC$  in which  $AB = 4$  cm,  $AC = 5$  cm and the altitude from A to BC is 2.5 cm.



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**15.** Construct a  $\triangle ABC$  whose perimeter is 14 cm and sides are in the ratio 2:3:4.



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**16.** Construct a triangle ABC in which  $BC = 8\text{cm}$ ,  
 $\angle B = 45^\circ$  and  $AB - AC = 3.5\text{ cm}$ .



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**17.** Construct a  $\triangle ABC$  in which  $QR = 6\text{ cm}$ ,  
 $\angle Q = 60^\circ$  and  $PR - PQ = 2\text{ cm}$ .



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**18.** Construct a right triangle whose base is  $12\text{cm}$  and sum of its hypotenuse and other side is  $18\text{cm}$



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**19.** An equilateral triangle if its altitude is  $3.2\text{cm}$ .



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1. Construct an angle of  $90^\circ$  at the initial point of a given ray and justify the construction.

Draw its angle bisector.



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2. Construct the following angles :

(i)  $60^\circ$  (ii)  $30^\circ$  (iii)  $15^\circ$



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3. Construct the following angles :

(i)  $90^\circ$  (ii)  $45^\circ$  (iii)  $75^\circ$



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4. Construct the following angles :

(i)  $67\frac{1^\circ}{2}$  (ii)  $22\frac{1^\circ}{2}$  (iii)  $37\frac{1^\circ}{2}$



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5. Draw a line 6.5 cm long. Draw its perpendicular bisector.



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6. Construct a  $\triangle ABC$ , when  $AB = 6.0$  cm,  $BC = 8.0$  cm,  $AC = 7.5$  cm.



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7. Construct a  $\triangle ABC$ , when  $AB = 3.6$  cm,  $BC = 3.0$  cm,  $\angle B = 30^\circ$ .



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8. Construct a  $\triangle ABC$ , when  $AB = 5.2$  cm,  
 $\angle A = 30^\circ$  and  $\angle B = 75^\circ$ .



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9. Construct a triangle  $ABC$  in which  
 $BC = 5\text{cm}$ ,  $\angle B = 60^\circ$  and  $\angle C = 45^\circ$ .



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**10.** Construct an isosceles  $\triangle ABC$  in which base  $BC = 5$  cm and side  $AB = 4$  cm.



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**11.** Construct an isosceles  $\triangle ABC$  in which base  $BC = 5$  cm and  $\angle B = 60^\circ$ .



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**12.** Construct a right angled  $\triangle ABC$ , right angled at A if hypotenuse  $BC = 5$  cm and side  $AB = 3$  cm.



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**13.** Construct an equilateral triangle whose side is 5 cm.



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**14.** Construct an equilateral triangle whose altitude is 4 cm.



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**15.** Construct a  $\triangle ABC$  in which  $AB = 5$  cm,  $BC = AC$  cm  $\angle A = 60^\circ$ . Draw the perpendicular bisector of  $AB$  and  $BC$ . If these bisector intersect at  $O$ . Measure  $OA$  and  $OB$ .



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**16.** Construct a  $\triangle ABC$  in which  $AB = 5$  cm,  $\angle A = 60^\circ$  and  $\angle B = 45^\circ$ . Draw the bisector of  $\angle A$  and  $\angle B$ . If these bisectors intersect at M. Measure CM.



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**17.** Construct a  $\triangle ABC$  in which  $BC = 4$  cm,  $\angle B = 60^\circ$  and  $AB + AC = 6.5$  cm.



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**18.** Construct a  $\triangle ABC$  in which  $AB = 5.1$  cm,  
 $\angle B = 40^\circ$  and  $BC + AC = 7$  cm.



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**19.** Construct a  $\triangle ABC$  in which  $\angle A = 30^\circ$   
and  $AB = 4.5$  cm and  $AC - BC = 1.2$  cm.



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**20.** Construct a  $\triangle ABC$  in which  $BC = 4.8$  cm,  
 $\angle B = 60^\circ$  and  $AC - AB = 1.4$  cm.



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21. Construct a triangle  $PQR$  whose perimeter is equal to  $14\text{cm}$ ,  $\angle p = 45^0$  and  $\angle q = 60^0$



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22. Construct a right angled triangle  $ABC$  whose base  $BC$  is  $6\text{ cm}$  and the sum of hypotenuse  $AC$  and other side  $AB$  is  $10\text{ cm}$ .



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**23.** Construct a  $\triangle ABC$  in which  $BC = 4.2$  cm,  $AB = 4.6$  cm and the altitude from  $B$  to  $AC$  is 3 cm.



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**24.** Construct a  $\triangle ABC$  whose perimeter is 15 cm and sides are in the ratio 4 : 5 : 6.



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**25.** Construct the following angles :

(i)  $60^\circ$  (ii)  $90^\circ$  (iii)  $120^\circ$  (iv)  $180^\circ$  (v)  $270^\circ$



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**26.** Construct the following angles :

(i)  $45^\circ$  (ii)  $135^\circ$



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**27.** Draw a line 6.0 cm long. Draw its perpendicular bisector.



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**28.** Construct a  $\triangle ABC$  with sides  $AB = 6$  cm,  $BC = 5.2$  cm and  $AC = 4.6$  cm.



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**29.** Construct a  $\triangle ABC$  in which  $AB = 6.3$  cm,  $AC = 4.5$  cm and  $\angle A = 45^\circ$ .



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**30.** Construct a  $\triangle ABC$  in which  $BC = 5.5$  cm,  
 $\angle B = 60^\circ$  and  $\angle C = 75^\circ$ .



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**31.** Construct a  $\triangle ABC$  right angled at B in  
which  $BC = 6.0$  cm and  $AC = 8.0$  cm.



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**32.** Construct a  $\triangle ABC$  in which  $BC = 5.7$  cm,  
 $\angle B = 45^\circ$  and  $AB + AC = 8.2$  cm.



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**33.** Construct a  $\triangle ABC$  in which  $\angle A = 60^\circ$   
 $AB=5$ cm and  $AC - BC = 1.5$  cm.



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**34.** Construct a  $\triangle ABC$  in which  $\angle A = 60^\circ$ ,  
 $\angle B = 45^\circ$  and  $AB + BC + AC = 11.6$  cm.



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**35.** Construct a  $\triangle ABC$  in which  $AB = 3$  cm,  
 $\angle A = 90^\circ$  and  $BC - AC = 1$  cm.



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**36.** Construct a  $\triangle ABC$  whose perimeter is 10 cm and length of its sides is 3 : 2 : 5.



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