



MATHS

BOOKS - MODERN PUBLICATION

CONSTRUCTIONS

Example

1. Draw a line segment of length 7.3 cm using a ruler.



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2. Draw a line segment of length 5cm. Construct the perpendicular bisector of this line segment.



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3. Construct an equilateral triangle with perimeter 14.5 cm.



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4. an equilateral triangle?



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5. Construct a triangle ABC in which

$BC = 8cm$, $\angle B = 45^\circ$ and

$AB - AC = 3.5cm$.



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6. Construct a triangle ABC in which $BC = 7\text{cm}$,
 $\angle B = 75^\circ$ and $AB + AC = 13\text{cm}$.



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7. Construct a triangle ABC whose perimeter is
8 cm and the base angles are 45° and 60° .



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8. Construct a triangle ABC whose perimeter is 8 cm and the base angles are 45° and 60° .



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



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



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11. The sides of a triangle are 8 cm, 10 cm and 12 cm. Prove that the greatest angle is double of the smallest angle.



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12. Construct an angle of 90° at the initial point of a given ray and justify the construction.



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13. Construct an angle of 45° at the initial point of a given ray and justify the construction.



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14. Construct the angles of the following measurement 30° .



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15. Construct the angles of the following measurement $22\frac{1}{2}^\circ$.



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16. Construct the angles of the following measurement 15° .



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17. Using ruler and compasses, construct the following angles and justify your construction
: 165°



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18. Using ruler and compasses, construct the following angles and justify your construction
: 165°





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19. Using ruler and compasses, construct the following angles and justify your construction
: 165°



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20. Construct an equilateral triangle, given its side and justify the construction.



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21. Construct a triangle ABC in which $BC = 7\text{cm}$,
 $\angle B = 75^\circ$ and $AB + AC = 13\text{cm}$.



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



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24. Construct a triangle XYZ in which $\angle Y = 30^\circ$, $\angle Z = 90^\circ$ and $XY + YZ + ZX = 11\text{cm}$.



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25. Construct a right triangle whose base is 12 cm and sum of its hypotenuse and other side is 18 cm.



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26. State True or False

An angle of 65° cannot be constructed using ruler and compass



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27. State True or False

An angle of 65° cannot be constructed using ruler and compass



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28. Construct a triangle ABC in which

$BC = 8cm$, $\angle B = 45^\circ$ and

$AB - AC = 3.5cm$.



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29. 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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30. Construct a triangle ABC, in which
 $\angle B = 60^\circ$, $\angle C = 45^\circ$ and $AB + BC + CA = 11$
cm.



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



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32. Draw an angle of 70°



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33. Draw a line segment of length 7.3 cm using a ruler.



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34. Draw an angle of 70°



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35. Draw an angle of 70°



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36. Draw an angle of 70°



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37. Find the area of a triangle whose sides are 9 cm, 12 cm and 15 cm.



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38. Construct a triangle ABC in which $BC = 7\text{cm}$,

$\angle B = 75^\circ$ and $AB + AC = 13\text{cm}$.



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39. Draw a square of side 4.5 cm.



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40. Construct the following.

Construct a rectangle whose adjacent sides

are 4 cm and 2.5 cm.



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41. Construct a rhombus whose one side is 4.8 cm and a diagonal is 5.6 cm.



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42. Construct a triangle ABC whose perimeter is 8 cm and the base angles are 45° and 60° .



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



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44. Construct a right triangle when one side is 3.5 cm and sum of other side and hypotenuse 5.5 cm.



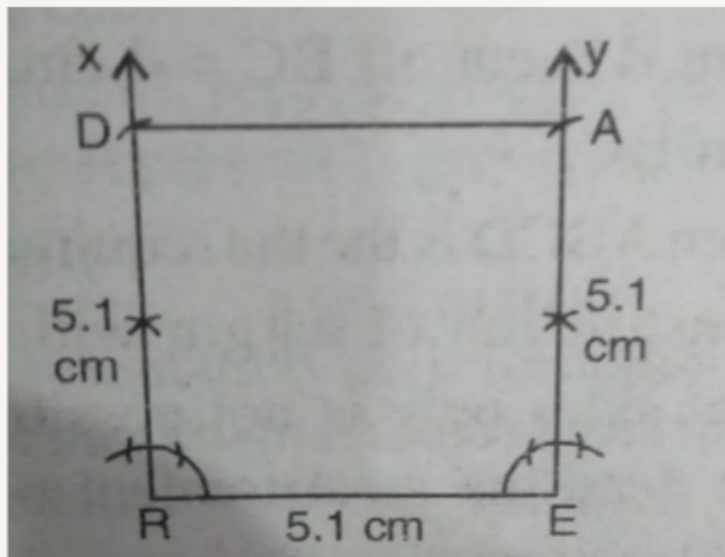
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45. an equilateral triangle?



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46. A rhombus whose diagonals are 5.2 cm and 6.4 cm along.



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Exercise

1. Draw a line segment of length 7.3 cm using a ruler.



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2. Draw a line segment of length 5cm. Construct the perpendicular bisector of this line segment.



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3. Draw a line segment of length 7.3 cm using a ruler.



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4. Draw a line segment AB and obtain a line segment of length

$$\frac{1}{4}AB$$



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5. Draw a line segment AB and obtain a line segment of length

$$\frac{1}{4}AB$$



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6. To draw the perpendicular bisector of line segment AB , we open the compass



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7. Draw $\angle(AOB)$ of measure 15°



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8. Two adjacent angles of a parallelogram have equal measure. Find the measure of each of

the angles of the parallelogram.



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9. Construct the angles of the following measurement 15° .



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10. Construct the angles of the following measurement 15° .



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11. Construct the angles of the following measurement 15° .



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12. Construct the angles of the following measurement 30° .



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13. Construct the angles of the following measurement $22\frac{1}{2}^{\circ}$.



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14. Draw an angle of 70°



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15. Draw an angle of 70°



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16. Construct with ruler and compass angles of following measures:

90°



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17. Construct with ruler and compass angles of following measures:

135° .



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18. an equilateral triangle?



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19. an equilateral triangle?



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20. an equilateral triangle?



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21. Construct a triangle ABC where $BC = 6.5$ cm, $CA + AB = 10$ cm and $\angle B = 60^\circ$.



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22. Construct a rectangle ABCD in which $AC = 5$ cm, $\angle CAB = 30^\circ$.



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23. 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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24. 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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25. Construct a triangle ABC where $BC = 6.5$ cm,
 $CA + AB = 10$ cm and $\angle B = 60^\circ$.



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26. Construct a rectangle ABCD in which $AC = 5$
cm, $\angle CAB = 30^\circ$.



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27. 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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28. Construct a triangle XYZ in which
 $\angle Y = 30^\circ$, $\angle Z = 90^\circ$ and
 $XY + YZ + ZX = 11\text{cm}$.



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



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30. Construct a triangle ABC, in which $\angle B = 45^\circ$, $\angle C = 60^\circ$ and $AB + BC + CA = 10$ cm.



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31. Construct a triangle with perimeter 12 cm and ratio of the sides 3:4:5, what type of triangle is this ?



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32. Construct a triangle ABC whose perimeter is 8 cm and the base angles are 45° and 60° .



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



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34. How do we define perimeter of a triangle?



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35. Which of the following metal can be cut with a knife?



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36. How many measurements are required for the construction of a unique quadrilateral ?



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37. Is it possible to construct a triangle with lengths of its sides as 8 cm, 7 cm and 4 cm?
give reasons for your answer.



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38. When do you say that a line is the perpendicular bisector of another line?



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39. Is it possible to construct a triangle with length of its sides as 4 cm, 3 cm and 7 cm give reasons for your answer.



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40. Draw a square of side 5 cm using ruler and compass .



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41. The angles of a triangle are in the ratio 1 : 2: 3. Find the angles in radians.



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42. (True/ False) A circle has only finite number of equal chords.



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43. 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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44. an equilateral triangle?



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45. To construct a triangle we must know at least its parts .



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46. Fill in the Blanks:

A compass establishes _____



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47. Fill in the blanks

Species A	Species B	Type of Interaction	Example
+	-	(i)	(ii)
+	+	(iii)	(iv)
+	(v)	Commensalism	(vi)



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48. Fill in the Blanks:

A part of circle is called _____



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49. Fill in the Blanks:

A single intersection consists of _____



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50. Fill in the blanks

Species A	Species B	Type of Interaction	Example
+	-	(i)	(ii)
+	+	(iii)	(iv)
+	(v)	Commensalism	(vi)



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51. Which of the following changes can not be reversed ?

A. 25°

B. 22.5°

C. 50°

D. 42°

Answer:



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52. Which of the following angles cannot be constructed using ruler and compass

A. 40°

B. 135°

C. 120°

D. 37.5°

Answer:



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53. Construction of a triangle is not possible if

:

A. 7 cm

B. 5 cm

C. 5.8 cm

D. 4.9 cm

Answer:



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54. Construction of a triangle is not possible if

:

A. 5.6 cm

B. 5 cm

C. 4.8 cm

D. 6 cm

Answer:



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55. Which of the following angles can be constructed using ruler and compass only?

A. 80°

B. 72°

C. 65°

D. 67.5°

Answer:



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56. With the help of ruler and compass it is not possible to construct an angle of :

A. 37.5°

B. 40°

C. 22.5°

D. 67.5°

Answer:



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57. With the help of ruler and compass it is not possible to construct an angle of :

A. 37.5°

B. 40°

C. 22.5°

D. 67.5°

Answer:



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58. Construct a triangle ABC, given that $AB = 5$ cm, $BC = 6$ cm and $AC = 7$ cm

A. 6.9 cm

B. 5.2 cm

C. 5.0 cm

D. 4.0 cm

Answer:



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59. Construct a triangle ABC, given that $AB = 5$ cm, $BC = 6$ cm and $AC = 7$ cm

A. 3.2 cm

B. 3.1 cm

C. 3 cm

D. 2.8 cm

Answer:



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60. Construct a triangle ABC with perimeter 10 cm and each base angle is of 45° .



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61. Construct an angle of 45° at the initial point of a given ray and justify the construction.



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62. Construct a triangle with perimeter 12 cm and ratio of the sides 3:4:5, what type of triangle is this ?



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63. To construct an angle of $22\frac{1}{2}^{\circ}$ we



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64. Construct an angle of 45° at the initial point of a given ray and justify the construction.



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65. Draw a square of side 4.5 cm.



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66. Construct a triangle ABC whose perimeter is 8 cm and the base angles are 45° and 60° .



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67. Construct an angle of 45° at the initial point of a given ray and justify the construction.



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68. Construct a right-angled triangle whose hypotenuse is 6 cm long and one of the legs is 4 cm long



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69. In an isosceles triangle the base angles are 15° more than the vertical angles. Find the angles of the triangle



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