MATHS

BOOKS - CHETAN MATHS (TAMIL ENGLISH)

STANDARD IX SYLLABUS

Solved Examples

1. Rewrite the following statement in 'if -then' form. 'Diagonals of a parallelogram bisect each

other'.

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2. Write betweenness for the points P,Q and R if d(P,Q)=3,d(Q,R)=4,d(P,R)=7.

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3. M is midpoint of seg PQ. Find PM, if PQ=13 cm.

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4. Co-ordinates of points P and Q are -2 and 2 respectively. Find d(P,Q).

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5. IF P-Q-R and if d(P,R)=10, d(Q,R)=3, then find d(P,Q).

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6. Co-ordinate of point P is 2. Find the co-ordinate of point Q which is 6 units or right of point P.

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7. Write the following statement in 'if-then' form. 'Linear pair angles are supplementary'.

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8. Write the converse the following .

'If two sides of a traingle are equal, then angles opposite to them are equal'.

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9. IF X-Y-Z and if l(XZ)=$12\sqrt{3}$ and l(XY)= $3\sqrt{3}$, the find l(YZ). Draw figure.

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10. Write given and to prove for the following statement.

If angles is linear pair are equal, then each of them is a right angle.

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11. Co-ordinate of point A is 7. Find co-ordinates of points at a distance of 7 units from point A.

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12. Write given and to prove for the following statement.Also draw the diagram.

'Vertically opposite angles are congruent'.

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13. 

Using the valus from the above table, decide which pair is congruent.

A. Seg DE and Seg DE

B. seg BE and seg AD

C.

D.

Answer: A::B::D

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14. Write given to prove:

'Diagonals of rectangle are equal'.

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15. In ΔABC , $\angle A = 70^\circ$, $\angle B = 48^\circ$, find $\angle C$.

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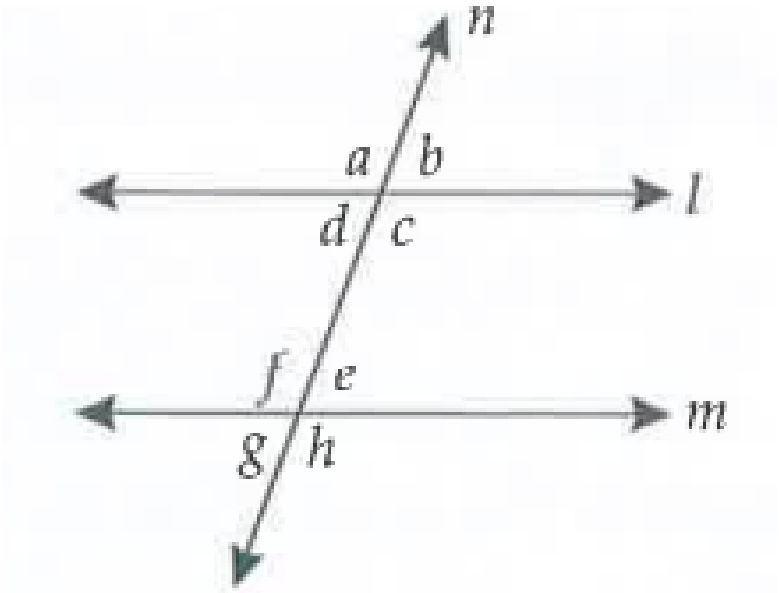
16. In fig(1), line l $||$ line m. Write a pair of corresponding angles.



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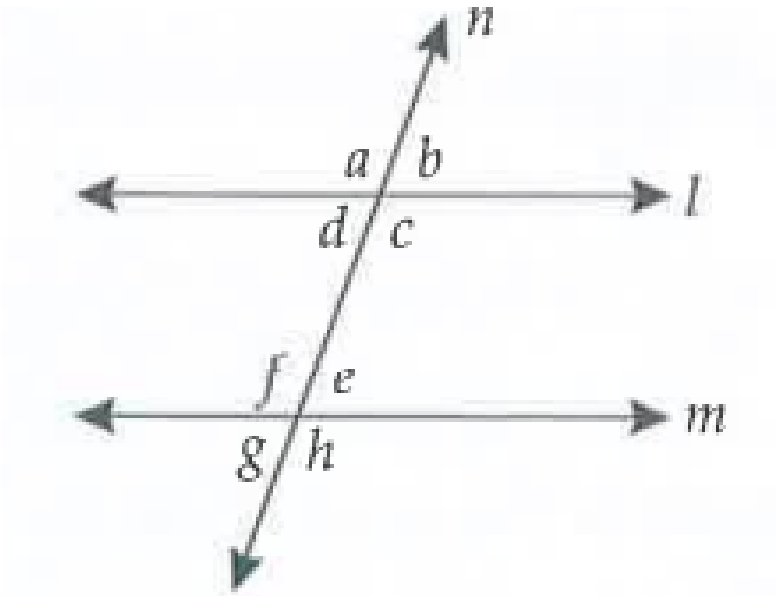

17.

Observe fig.(1) and answer the following.

If $\angle c = 110^\circ$. Find $\angle d$

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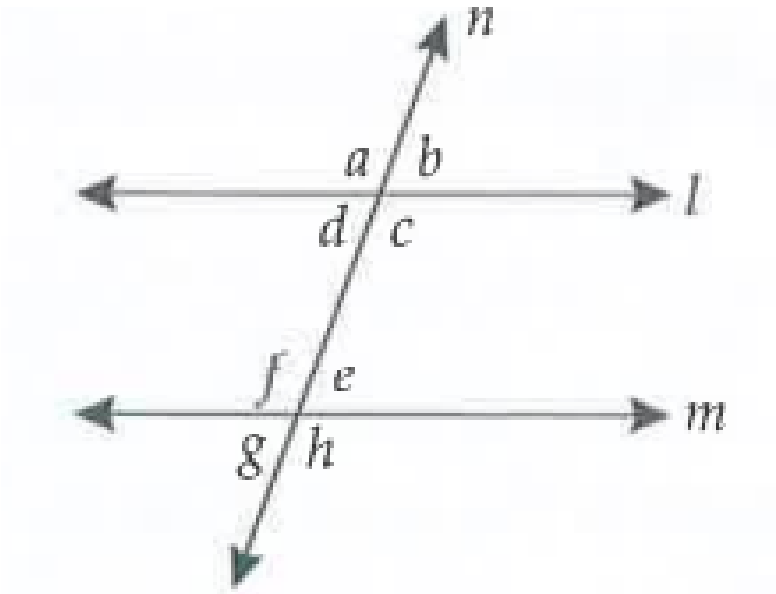

18.

Observe fig.(1) and answer the following.

If $\angle f = 80^\circ$. Find $\angle d$

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19. Ratio of two complementary angles is 5:4.

Find the measure of each angle.

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20. Ratio of two supplementary angles is 7:2. Find measure of each angle.

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21. Two angles forming a linear pair of angles are equal. Find the measure of each angle.

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22. In fig.(2), line p||lineq. $\angle w = 120^\circ$. Find $\angle s$.

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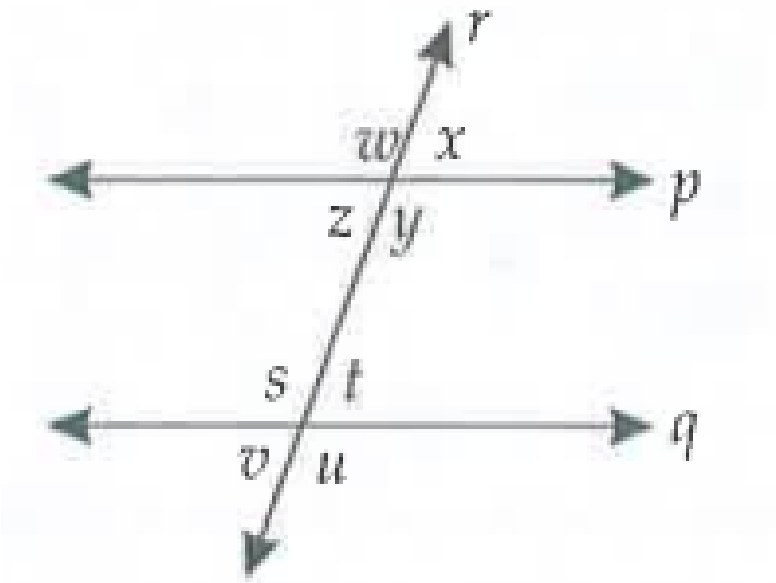
23.



In fig.(2), $\angle x = 75^\circ$ and $\angle s = 105^\circ$. Can we

say line p||line q? Justify.

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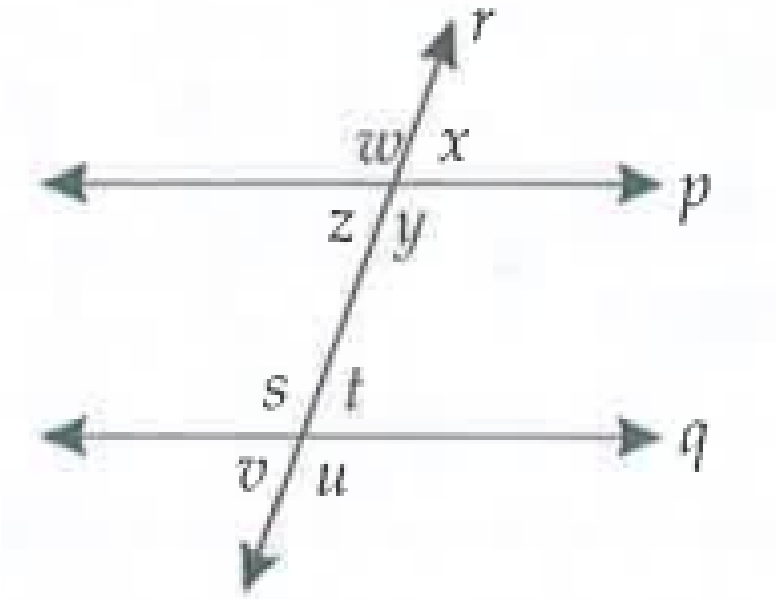

24.

In fig.(2), $\angle u = 95^\circ$. What should be measure of $\angle z$, so that line p|| line q.

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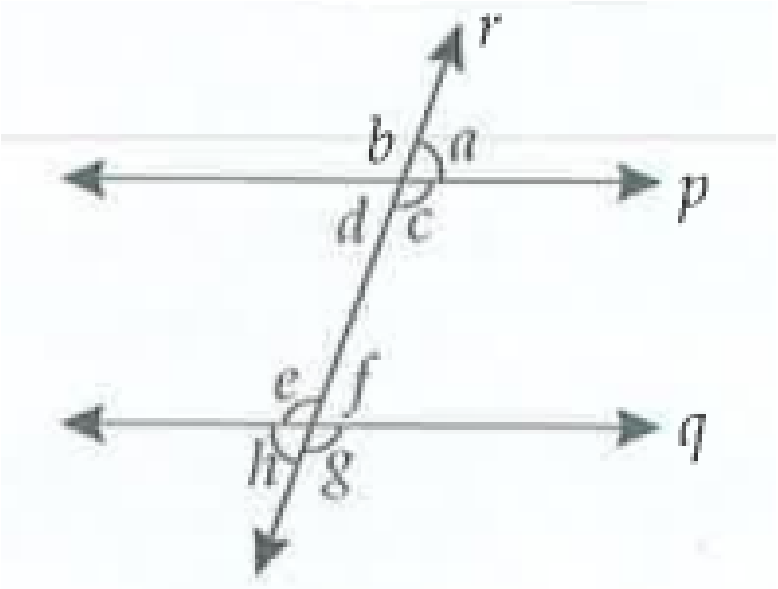
25.



Observe figure(1) and answer the following . If

$\angle d : \angle e = 2 : 3$. Find each angle.

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26. IF two lines are intersected by a transversal then how many pairs of (a) Vertically opposite angles (b) Corresponding angles (c) Alternate angles are formed?

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27. In a figure angle AOB : angle BOC = 2 : 3. If angle AOC = 75 degree then find the measure of angle AOB and angle BOC ?

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28. In Fig., ray OS stand on a line POQ Ray OR and ray OT are angle bisectors of $\angle POS$ and $\angle SOQ$ respectively. If $\angle POS=x$, find $\angle ROT$.

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29. Two angles of a triangle are of measures 50 degree and 30degree. Find the measure of the third angle.

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30. Measure of supplement of an angle is 3 times the measure of the angle . Find the measure of the angle.

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31. Measure of half of the angle is equal to its complement . Find the measure of the angle.

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32. In ΔPQR, $\angle Q = 90^\circ$ and segment QM is median on hypotenuse PR. If QM=3.3 units, find l(PR).

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33. In ΔLMN, LM=5cm, MN=3cm and LN=4cm. Then find biggest and smallest angles of ΔLMN.

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34. IF $\Delta PQR \sim \Delta XYZ$, then write ratios of corresponding sides.

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35. $\angle A = 70^\circ, \angle B = 40^\circ$. Find $\angle ACB$.

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36. In $\Delta PQR, \angle P = 60^\circ, \angle Q = 95^\circ$, then write names of longest and the smallest sides.

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37. $\Delta ABC \sim \Delta PQR$. Then complete the following

$$\frac{AB}{PQ} = \frac{BC}{\square} = \frac{\square}{PR}$$

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38. In ΔXYZ and ΔLMN, $\angle X \cong \angle L, \angle Y \cong \angle M$, then by which test $\Delta XYZ$and ΔLMN are similar?

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39. $\Delta ABC \sim \Delta PQR$, write ratios of corresponding sides.

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40. In $\Delta ABC, \angle A = 30^\circ, \angle B = 90^\circ, \angle C = 60^\circ$. Write lengths of sides opposite 30° and 60° with respect to AC.

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41. 3 angles to traingle are x°, $3x^\circ$, $5x^\circ$. Find measures of each angle.

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42. In ΔPQR, $\angle Q = 55^\circ$, $\angle PRT = 120^\circ$. Find $\angle P$. (Give reasons)

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43. $\Delta PQR \sim \Delta XYZ$. $\angle P = 60^\circ$, $\angle Q = 40^\circ$.

Find $\angle Z$.

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44. $\Delta ABC \sim \Delta PQR$, AB=8 , BC=10, AC=9, PQ=12.

Find PR and QR.

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45. In ΔABC, $\angle A = 30^\circ$, $\angle B = 90^\circ$, $\angle C = 60^\circ$, AC=18. Then find AB and BC.

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46. Ratio of 3 angles of a traingle are 3:4:5. Find each angle.

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47. In quadrilateral ABCD, AB=AD, AC bisects $\angle A$. Prove $\Delta ABC \sim ADC$.

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48. Prove that equilateral traingle is equiangular.

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49. Show that in right angled traingle, the hypotenuse in the longest side.

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50. Find diagonal of square with side 8 cm.

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51. In rectangle PQRS, PR=6cm , then find QS.

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52. In parallelogram ABCD, if $\angle A = 75^\circ$, find $\angle B$.

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53. In fig if AB∥CD,∠APQ=40 degree and ∠PRD=118 degree find x and y.

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54. Diagonals of Rhombus MNPQ intersect at point T, find $\angle MTN$.

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55. Write all types of quadrilaterals.

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56. One side of a square is 5.5 cm. What is its two perimeter?

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57. Segment joining mid points of any two sides is .....of third side and ..... To third side.

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58. Draw a trapezium . Write names of its parallel sides.

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59. Diagonal of a square is $10\sqrt{2}$ cm. Find its side.

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60. Diagonal of which type of quadrilaterals are congruent?

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61. Adjacent sides of rectangles are 9cm and 40 cm . Find diagonal.

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62. Diagonal of square is $2\sqrt{2}$cm. Find its side and perimeter.

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63. Diagonal of rhombus are 12 cm and 16cm.

Find its side.

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64. In parallelogram ABCD, $\angle A : \angle B = 1 : 2$.

Find $\angle C$, $\angle D$

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65. Opposite angles of rhoumbus are $3x^\circ$ and $(4x - 15)^\circ$. Find x.

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66. Diagonal of a square is 13cm. Find its side.

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67. Diagonal of a rectangle ABCD intersect at point P,$\angle BPC = 50^\circ$. Then find $\angle PAD$.

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68. Find perimeter of Rhombus with side=14cm.

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69. Ratio of adjacent angles of a parallelogram is 2:3. Find its angles.

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70. Find perimeter of square whose diagonal is $12\sqrt{2}$.

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71. If radius of a circle is 4.3 cm , then find length of longest chord.

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72. If circumcentre of a traingle is outside the traingle, then what is the type of traingle?

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73. A circle passes through 3 vertices of a traingle. What is the centre of the circle called?

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74. Radius of a circle is 3.05 cm, then diameter =? Cm

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75. O is the centre PM=4.05 cm Find chord PQ

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76. Two circles with $r_1 = 6.3cm$ and $r_2 = 3.7cm$ touch externally. What is the distance between their centres?

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77. What is ratio of circumcircle radius and radius of incircle of equilateral traingle?

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78. Name the circle which passes through three vertices of a triangle.

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79. What is incircle of a traingle?

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80. Circles with different radii but same centre are called.....

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81. OM $\perp$ AB, centre is O, radius =10 cm, OM=8cm. Find chord AB.

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82. Find radius of circle with chord AB=12cm. Distance between chord and centre=8cm.

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83. Draw circle with diameter 8cm.

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84. Distance of chord PQ from centre of a circle is 11 cm, PQ=120cm. Find diameter of circle.

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85. From figure, name the following (centre P).

(i) Chord

(ii) Diameter

(ii) Radius

(iv) Centre angle

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86. Find area of circle whose diameter is 14 cm.

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87. Prove that if chords of congruent circles subtend equal angles at their centres then chords are equal.

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88. Chord of circle =24cms. It is at a distance of 5cm from centre . Find radius

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89. Draw circumcircle of an equilateral traingle.

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90. Chord=30 cm. distance of chord from centre=8cm. Find radius of circle.

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91. Points A(-6,2) and B(0,-3) are in which Quadrant / axis?

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92. (a) x=3 (b) y-4=0, which equation is parallel to X-axis?

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93. Points with (i) both co-ordinates positive and (ii) both negative co-ordinates are in which quadrants?

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94. Write equation of line PQ parallel to X-axis.

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95. Write equation of line MN parallel to Y-axis and 6 units left of Y-axis.

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96. What are X co-ordinates of each point on Y-axis?

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97. What are co-ordinates of origin?

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98. What is distance between X-axis and line y=(-5)?

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99. If a point on Y-axis, then what is its x co-ordinate?

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100. How many lines are there which are parallel to the Y-axis and having distance 5 units?

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101. Find distance between X-axis and line y=-4.

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102. A(-5,-3) and B(6,-8) are in which quadrants?

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103. Point M(-3,-2) is on line parallel to Y-axis and line x=4 is parallel to Y-axis.

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104. What is the distance between Y-axis and line x=4 is parallel to Y-axis.

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105. In which quadrants or axes are following points?

(i) (4,-7) (ii) (-6,-9) (iii) (-4,0) (iv) (0,-8)

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106. Which graphs of following equations are parallel to Y-axis?

(i) $x=4$ (ii) $y-3=0$ (iii) $x+8=0$ (iv) $y=(-9)$

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107. Write equation of line parallel to Y-axis and on its right side at distance of 6 units.

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108. How many lines are there which are parallel to X-axis and having distance of 5 units?

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109. Which of equation given below has graph parallel to X-axis and which one have graph parallel to Y-axis?

(i) $x=5$ (ii) $y-3=0$ (iii) $x+8=0$ (iv)$=y=(-10)$

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110. What are names of horizontal and vertical lines drawn to determine the position of any point in plane?

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111. Find value $8\sin 30^\circ + 4\cos 60^\circ$

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112. If $\tan\theta = 1$, then tan(90-θ)=?

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113. Fill in the blanks

$\sin 30 + \cos\ldots\ldots\ldots\ldots = 1$

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114. (i) If cosec A= sec 34 degree, then find A (ii)

If tan B= cot 47 degree, then find B

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115. If $\sin\theta = \frac{3}{5}$, then $\cos\theta$=?

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116. Find the value of tan 7 degree tan 23 degree tan 60 degree tan 67 degree tan 83 degree.

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117. IF $\sin\theta = \frac{\sqrt{3}}{2}$, then $\cos\theta$=?

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118. $\sin^2 50^\circ + \cos^2 50^\circ = ?$

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119. $\tan\theta = ?$

$\tan(90 - \theta) = ?$

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120. sin 30 $\times$ cos.....=1

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121. If sin $\theta = \frac{5}{13}$, then find cos θ

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122. Find the value of $\sin^2 30 + \cos^2 60 + \tan^2 45.$

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123. If sin(θ+α)=cos(θ+α), then Prove that tanθ = 1+tanα / 1−tanα

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124. Fill in the blanks

(i) $\tan 30^\circ \times \tan \square = 1$

(ii) $\cos 45^\circ = \sin \square$

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125. Find the value of

$\cos 60^\circ \times \cos 30^\circ + \sin 60^\circ \times \sin 30^\circ$

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126. Write following ratios.

(i) $\tan 50^\circ$ (ii) $\cos 40^\circ$

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127. If $\sin\theta = \frac{15}{17}$, then $\cos\theta = ?$

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128. $\frac{\cos 62^\circ}{\sin 28^\circ} = ?$

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129. If $\tan\theta = \frac{12}{5}$, then find $5\sin\theta - 12\cos\theta$ =?

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130. In right angled $\Delta ABC, \angle B = 90^\circ, \angle C = \theta.\cos\theta = \frac{24}{25}$, find $\sin\theta$ and $\tan\theta$.

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131. Side of a cube is 4cm. Find ratio of its total surface area and vertical surface area.

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132. Volume of a cube is 1000 cm^2. Find its side.

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133. Find volume of a cuboid of $30 \times 18 \times 10$ cm.

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134. Radius of sphere is 7 units . What is its volume?

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135. Write formula for total surface area and volume of a solid hemisphere.

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136. Find radius of a cone with slant height 13 cm and perpendicular height 12 cm.

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137. Find the surface area of a sphere if radius is 9cm.

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138. If radius is 'r' and height is 'h', then what is curved surface area of cylinder?

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139. What is volume of sphere whose radius is 4cm?$(\pi = 3.14)$

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140. IF perpendicular height of cone is 8cm and radius 15 cm, then find its slant height.

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141. Find the total surface area of a cube whose volume is $1000 cm^3$.

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142. Volume of a cone is 6280 cubic cm. Find its perpendicular height if its radius is 20 cm.

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143. Volume of a cuboid is 300 cm^3. Find its length if its breadth is 6 cm and height is 5 cm.

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144. Volume of a cube and a cuboid are equal. Find the height of cuboid if its length 12 cm and breadth 3cm. Also, side of the cube is 6cm.

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145. For a sphere surface area is 154 sq.cm. Find its volume.

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146. Volume of a hemisphere is $18000\pi cm^3$. Find its diameter

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147. The total surface area of a cube is 5400 sq.cm. Find its vertical surface area.

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148. Ratio of length, breadth and height are in the ratio 5:2:1. Its volume is 1250 cm^3. Find its dimensions.

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149. Area of base of a cylinder is $100cm^2$. Its height is 5cm. Find its volume.

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150. A cylinder with base radius 7 cm has , curved surface as 110 cm^2.Find its volume

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Problems For Practice

1. Draw segment PQ=4.3cm and bisect it.

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2. Draw equilateral side of 3.8 cm.

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3. Draw Right angled traingle with base 3.2 cm and height 4.3cm.

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4. Bisect $\angle ABC = 130^\circ$

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5. Draw AB $\perp$ BC.

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6. Draw seg JK=8.4 cm and draw its perpendicular bisector.

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7. Draw ΔRST, with RS=5cm, ST=9cm, RT=7cm.

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8. Draw ΔMNP with NP=6cm, $\angle N = \angle P = 70^\circ$.

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9. Draw $\angle 130^\circ$

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10. Draw a scalene ΔRST.

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11. Draw ΔABC, AB=3cm, BC=4cm, AC=5cm, measure $\angle B$.

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12. Draw ΔPQR. Ratios of sides 2:3:4.

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13. Draw equilateral traingle with side =4cm.

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14. Draw right angled traingle ΔABC with $\angle A = 40^\circ$ and seg AB=5.5 cm.

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15. Draw ΔMNP, NP=7cm, $\angle N = \angle P$.

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16. DrawΔPQR,QR=6.0 cm, $\angle Q = \angle R$, $\angle P = 80^\circ$.

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17. Draw right angled $\Delta MNP, \angle N = 90^\circ$, draw perpendicular bisector of MP and angle bisector of $\angle N$.

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18. Draw scalene traingle and draw angle bisectors.

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19. Draw ΔMNP, $\angle M = 50^\circ$,$\angle N = 70^\circ$, side MN=6cm.

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20. Draw ΔABC, AB=AC=4cm, BC=6cm

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