MATHS

BOOKS - NAVBODH MATHS (HINGLISH)

PRACTICE QUESTIONS BASED

Basic Concepts In Geometry

1. If the coordinate of point A is -5 on a number line and that of B is 3, find d(A,B).

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2. The coordinate of point A is -8 and B lies to the right side of A on the number line. If d (A,B) -18 then find the coordinate of point B .

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3. If A -B-C and l (AC)=11,l(BC)=6.5 then find l(AB).

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4. Write the converse statement of the following statement : If a quadrilateral is a rhombus then its diagonals are perpendicular bisectors of each other . Also state whether the converse statement is true .

5. Write the following statement in conditional form : Angles in a linear pair are supplementary .

6. Write the antecedent and the consequent part the following statement : The diagonals parallelogram bisect each other .

7. If d(A,B) =5 , d(B,D)=3 and d(A,D)=8 then decide whether in between exists among the points A, B and D . If so,decide which point lies between the other two .

8. Draw a labelled figure showing information given in the following statement : If the altitudes drawn on two sides of a triangle are congruent then those two sides are congruent . Also write the antecedent and the consequent part with respect to the figure drawn.

1. In the figure ,if
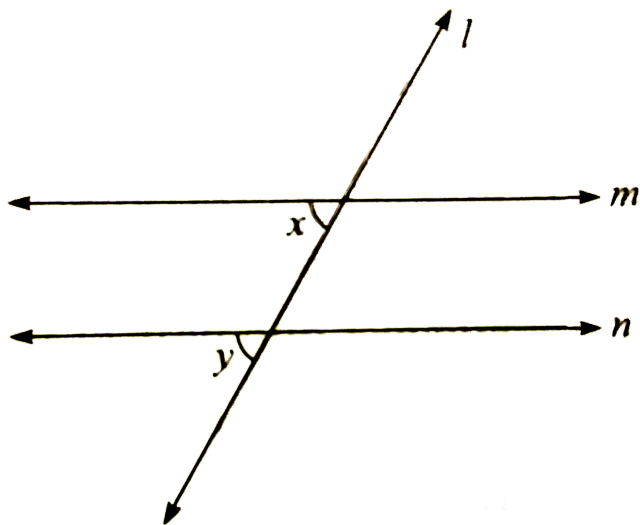
$\angle x = 70°$ and

$\angle y = 71°$ .State with reason whether

line m || line n. Justify .

2. In order to get , line l parallel to line m, what should be the value of x ? Justify .

3. In the figure , line l || line m and line n is the transversal. With respect to givne information find the value of a.

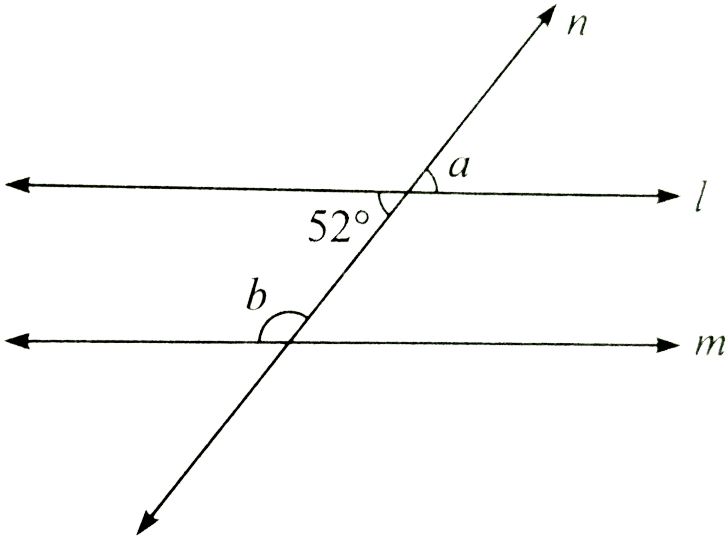**4.** In the figure , write the alternate exterior angle of ∠d and corresponding angle of ∠c .
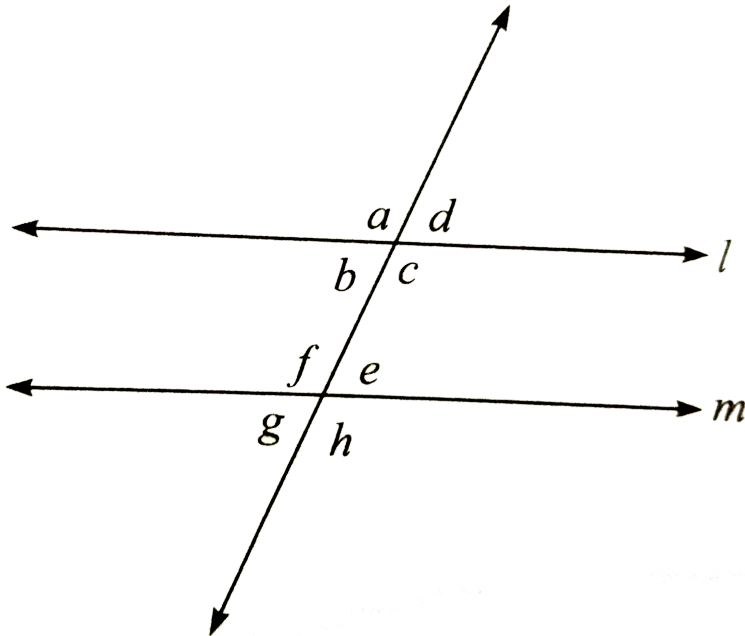
5. In the figure, if line l || line m and line n is the transversal, then find the values of a and b.

6. In the given figure, line l || line m and line n is the transversal. Write the equation involving variables a and b and thus suggest one pair of values of a and b which satisfies the equation.
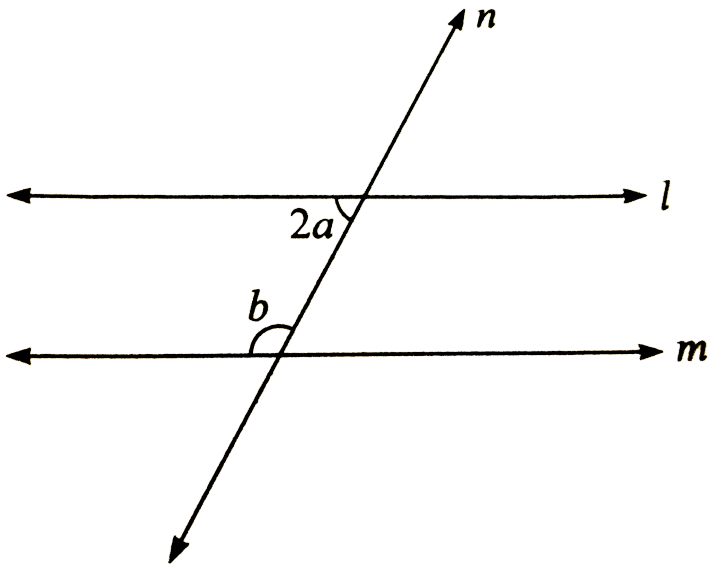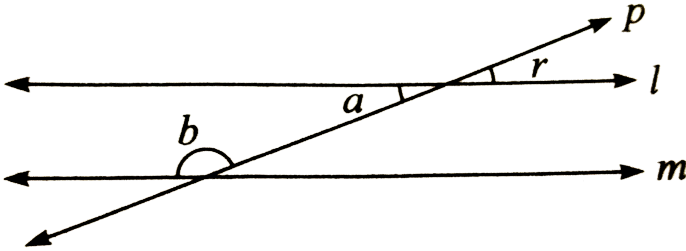
7. In the figure , line l || line m and line n is the transversal, find the value of x .
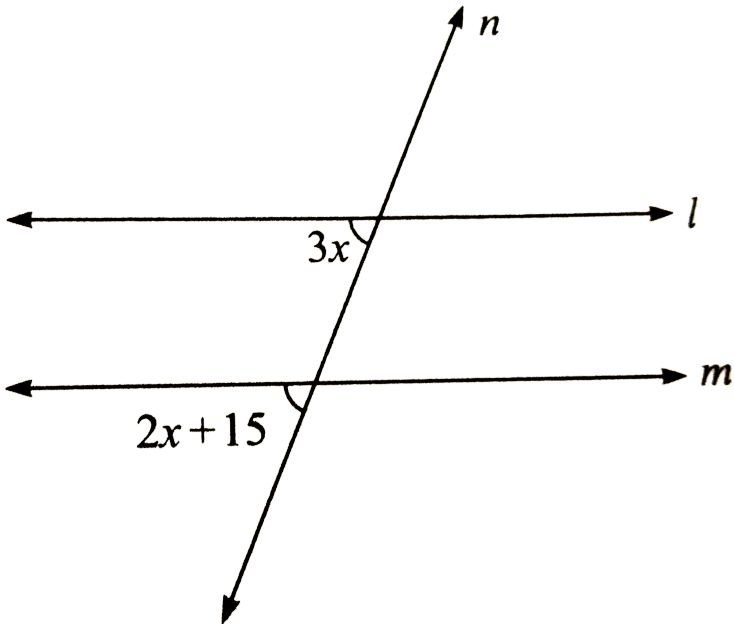
8. In the figure , line l || line m, line p is the transversal. If r =$20°$ then find a :b .

9. In the figure , if line q || line r, line p is transversal and if a $= 80°$, find the values of f

and g .
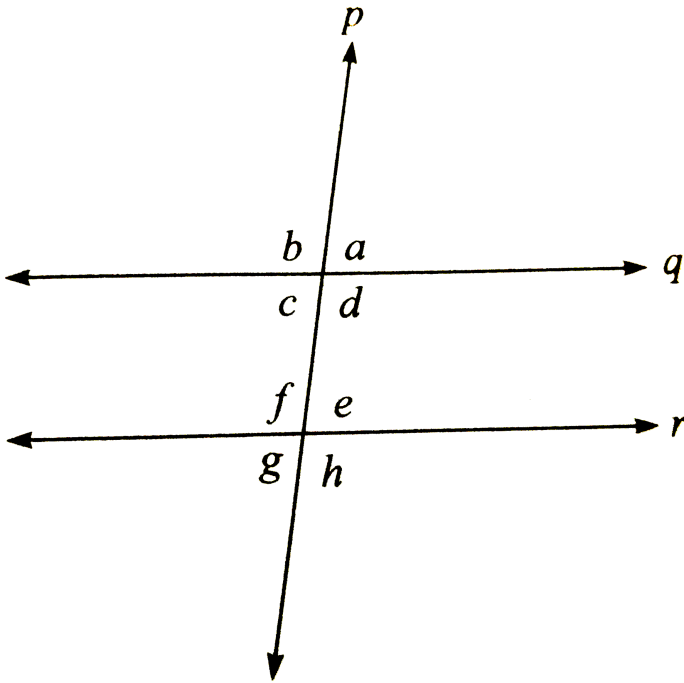
10. In the figure , a : b=5:13 and a=$50°$ then find

b. Decide whether line l || line m or not . Justify

.

Triangles

1.
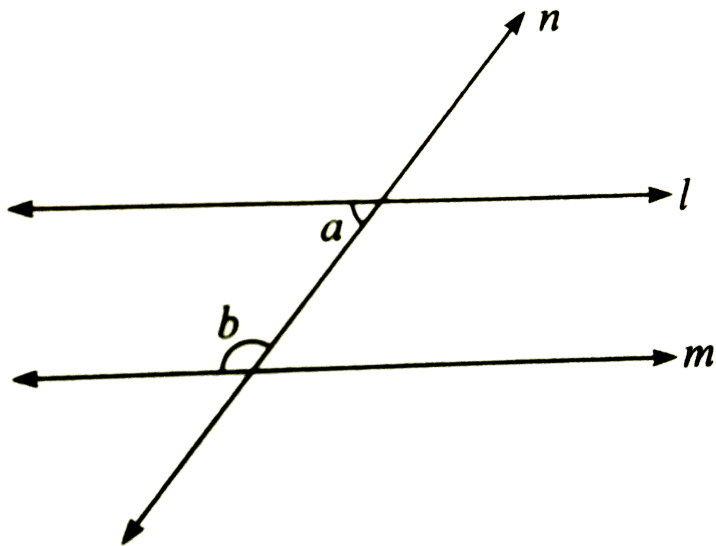
Observe the figure and state the test by which the given pair of triangles are congruent . Also mention seg AB is congruent to which side of △ PQR.

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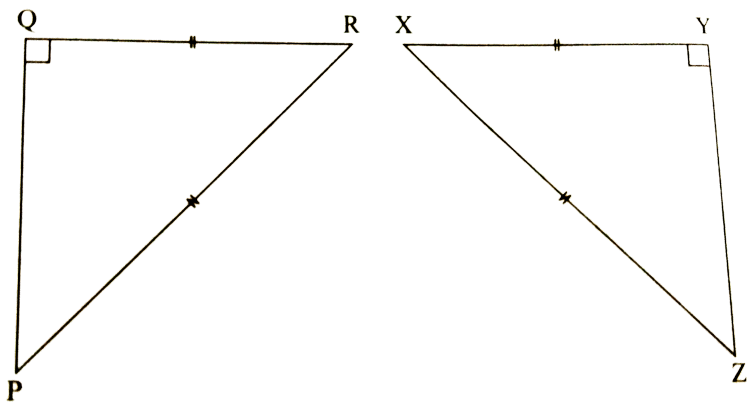
2.

Observe the figure and find which angle of $\triangle$ PQR is congruent to $\angle$ YXZ and which side of $\triangle$ PQR is congruent to seg YZ . Justify .

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3.
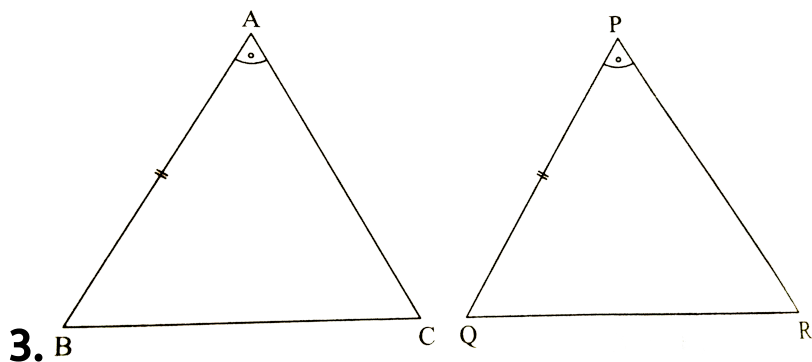
In order to get $\triangle ABC \cong \triangle$ PQR by SAA test m what additional information should be proveded .

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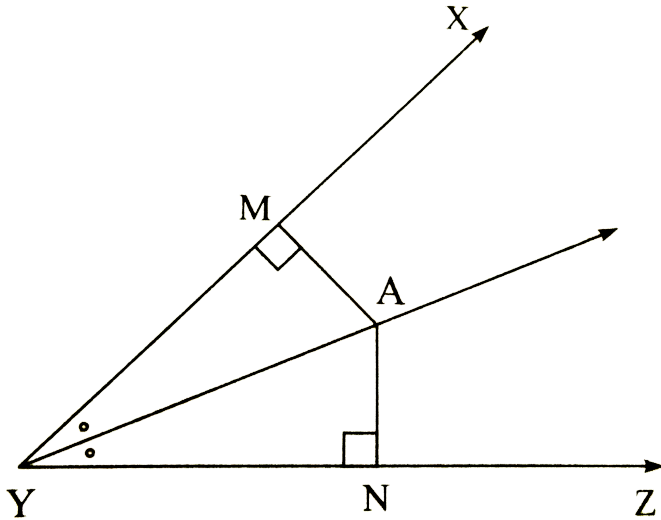
4.

In the figure , ray YA is the bisector of ∠ XYZ if

AM =2 cm then find AN. Justify .
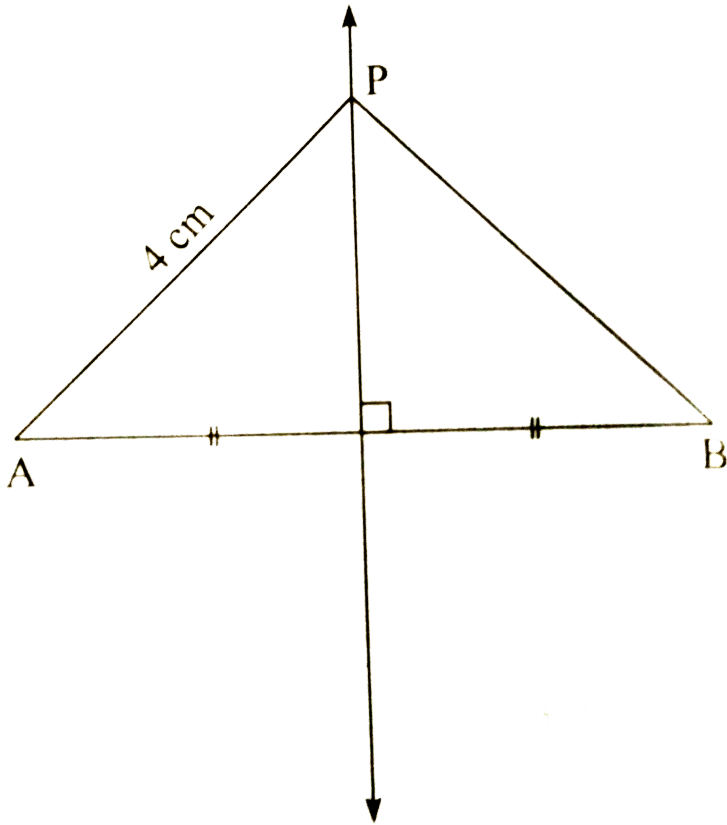
5.

In the figure , point P lies on the perpendicular bisector of seg AB. If PA =4 cm , find PB. State reason .

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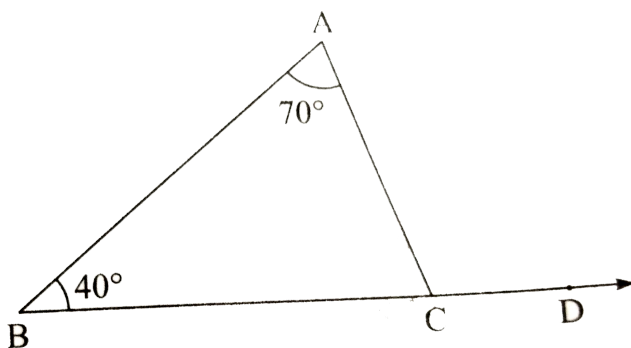
6.

In the figure , $\angle$ ACD is an exterior angle of

$\triangle$ ABC, $\angle A = 70°, \angle B = 40°$. Find

measure of $\angle$ ACD .

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7. In $\triangle XYZ, \angle X = 65°, \angle Y = 75°$ then find $\angle Z$.

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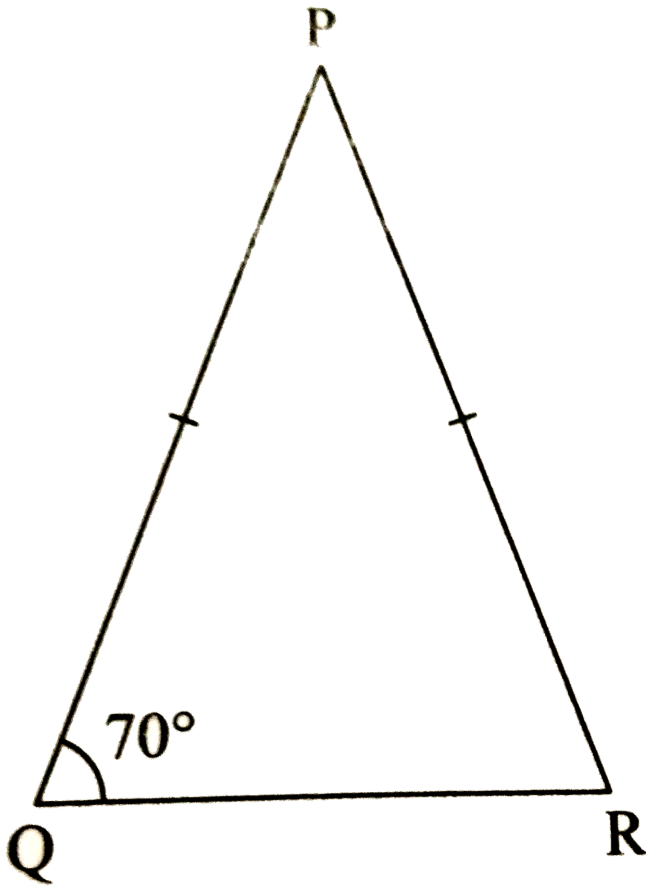
8.

In $\triangle$ *PQR, segPQ$\cong$segPR,*

if $\angle PQR = 70°$, *then* find $\angle PRQ$.

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9. The length of hypotenuse of a right angled triangle is 18 cm . Find the length of median of its hypotenuse.

10. If $\triangle ABC \triangle PQR$, then write the corresponding angles of the two triangles and write the ratios of corresponding sides.

11. Which of the following is not the test of congruence of two triangles ?

ASA test ,AAS test, SSA test , SAS test.

12. In $\triangle$ XYZ, XY =4cm , YZ =6 cm , XZ =5 cm. If $\triangle$ XYZ $\triangle$ PQR and PQ =8 cm then find QR and PR.

13. In $\triangle ABC$, $\angle ABC = 90°$

$\angle BAC = 45°$ and AC $=4\sqrt{2}cm$,

then find AB.
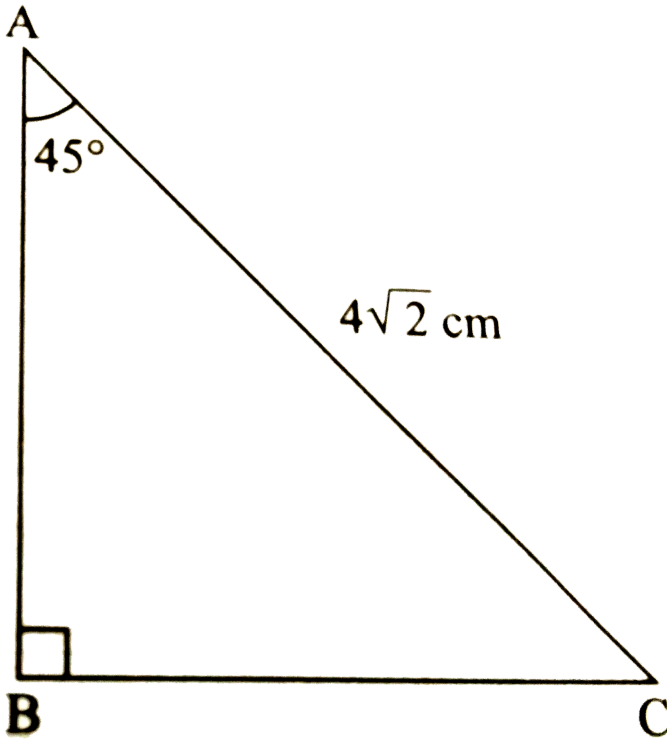
14. In the figure , AC =12 cm ,

$\angle ABC = 90°, \angle BAC = 30°$,

then find AB and BC.

A

30°

12 cm

60°

B

C
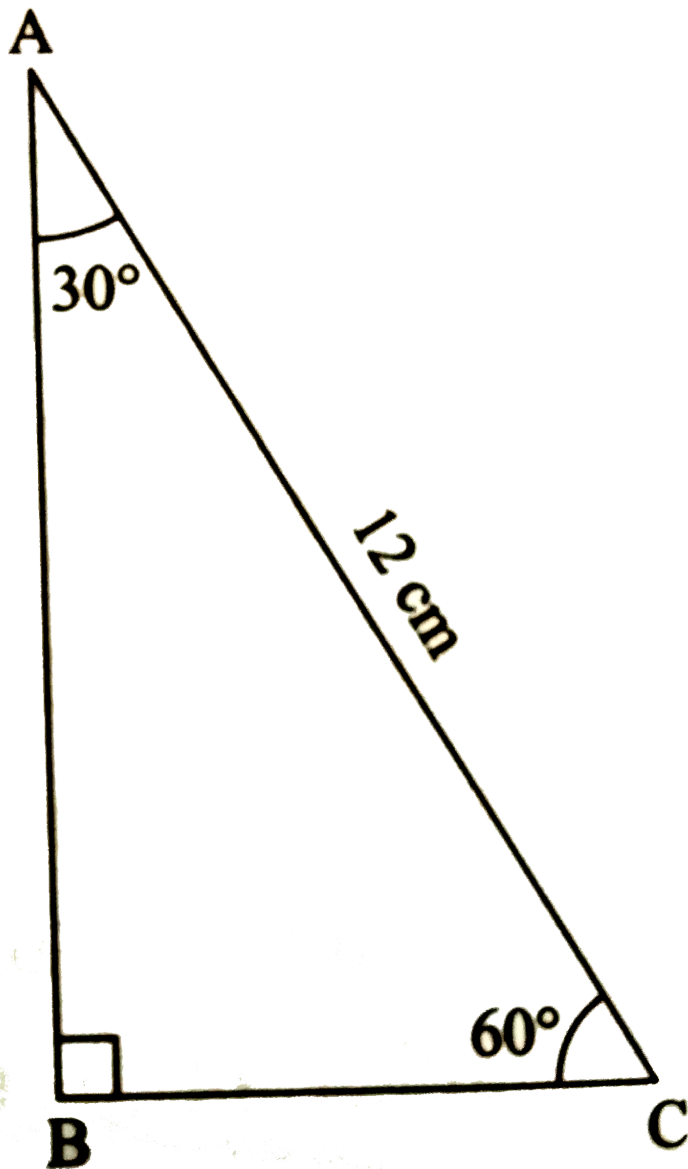
15. In $\triangle PQR$, $PQ = 10$ cm , QR =12 , PR =8 cm . Find out the greatest and the smallest angle of the triangle .

16. In $\triangle FAN$, $\angle F = 80°$, $\angle A = 40°$. Find out the greatest and the smallest side of the triangle. State the reason.

17. In the figure , $\angle PQR = 32°$ seg SN $\perp$ ray

QP and seg SM $\perp$ ray QR . Find $\angle$ PQS . state

the reason for your answer.

18.
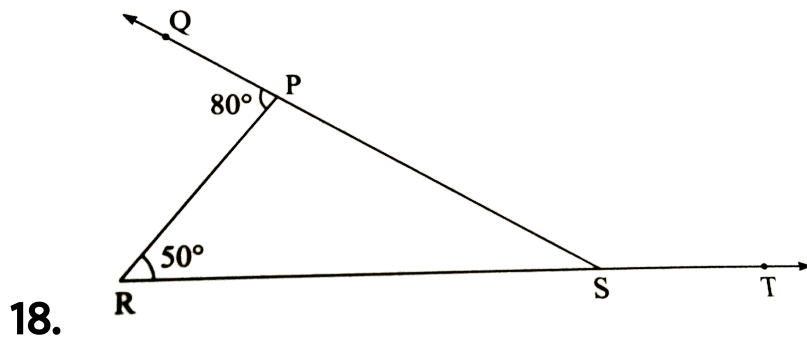
In the figure , $\angle$ QPR and $\angle$ PST are exterior

angles of $\triangle$ PRS . If $\angle PRS = 50°$ and

$\angle QPR = 80°$, then find measure of $\angle$ PST.

Quadrilaterals

1. □ ABCD is a parallelogram of AB =4 cm , BC =5 cm, then find AD and DC . State your reason
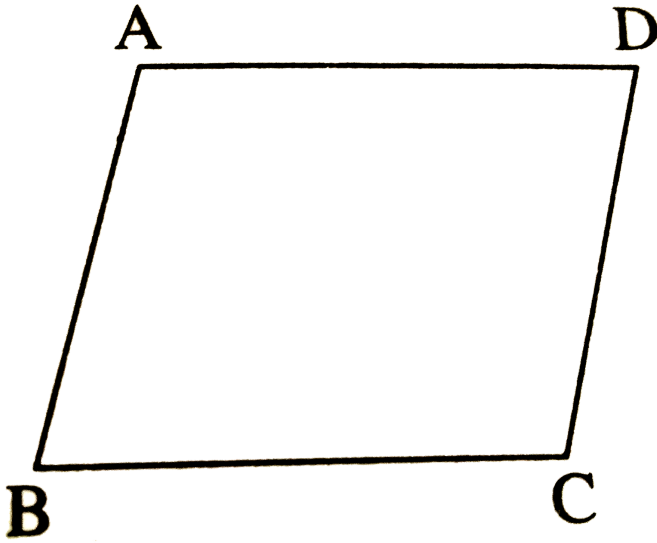
2. ☐ PQRS is a rhombus and $\angle PQS = 42°$, then find $\angle$ PQR. Justify .
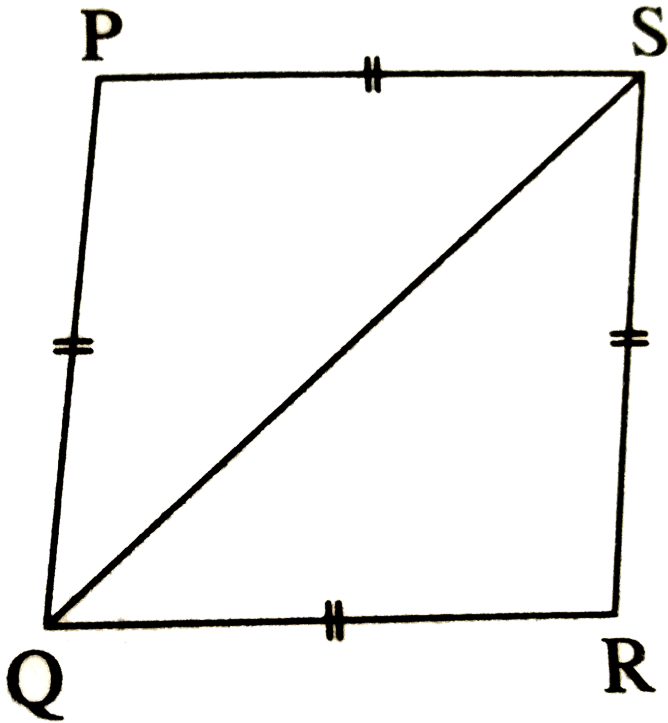
3. State with reason whether the following statement , Every square is a rhombus is true

or false.
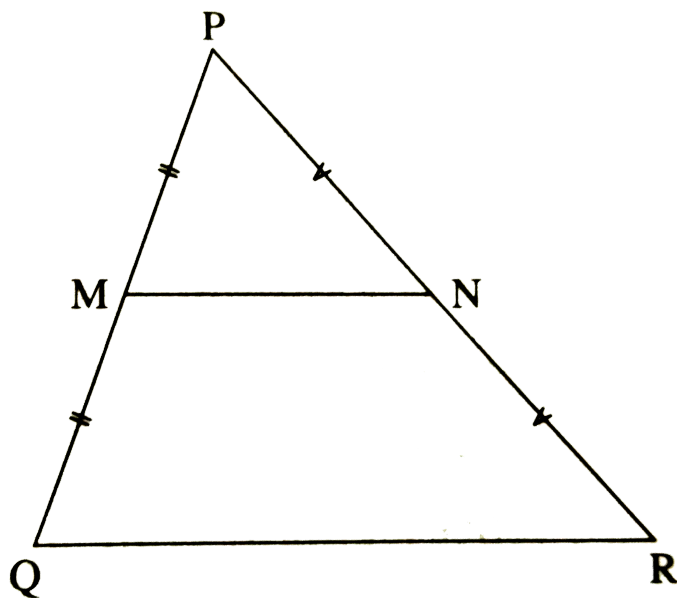
4.

In the figure, M and N are the midpoints of

sides PQ and PR respectively . If MN =6 cm then find QR. State your reason .

5. ☐ ABCD is a parallelogram. If

$\angle A = 3x$ and $\angle C = 120°$

then find the value of x.
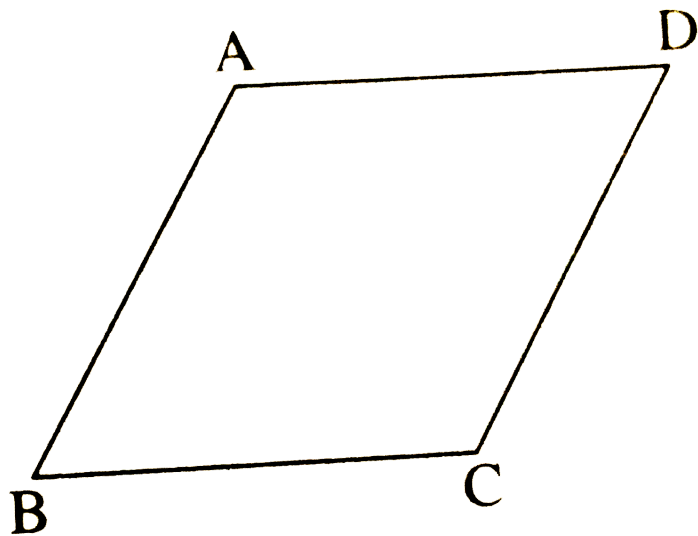
6. The diagonals are perendicular to each

other. ' In which of the following quadrilaterals

is the following property observed ?

Rectangels, Rhombus , Kite, Isosceles tranpezium .

7.
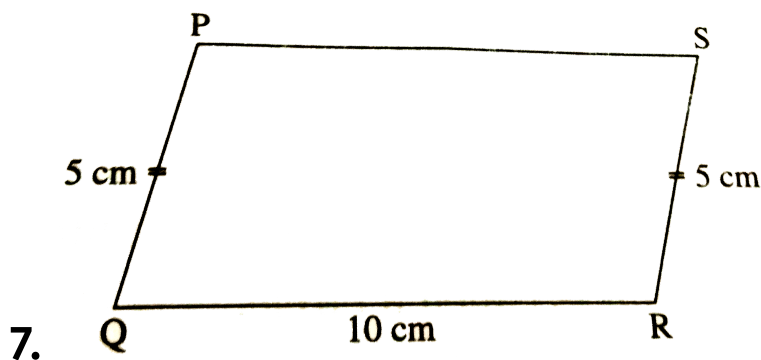
In the figure ,segPQ || seg SR and PQ =SR =5 cm . If QR =10 cm , then find PS . Justify your answer.

8. In rhombus PQRS,

PQ =6.5

and $\angle QPS = 75°$, then find QR and $\angle$ PQR .
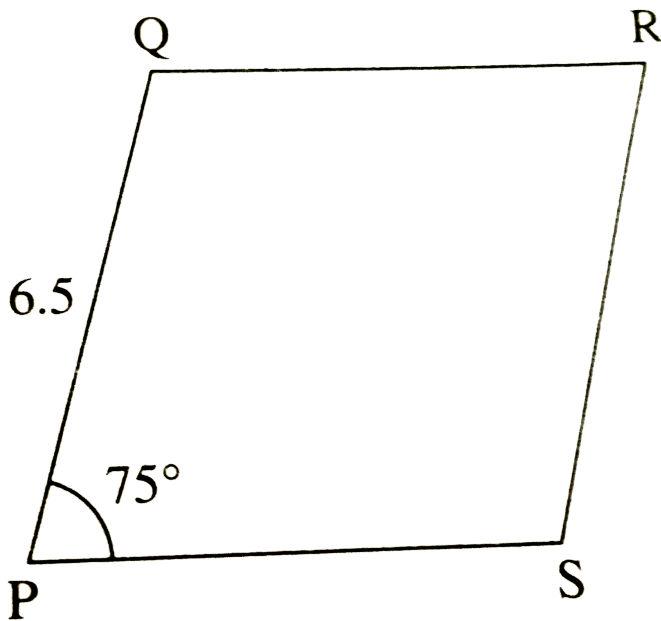
9. The adjacent sides of a rectangle are 7 cm and 24 cm . Find the length of its diagonal.

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10. If the diagonal of a square is 13 cm ,then find the length of its side .

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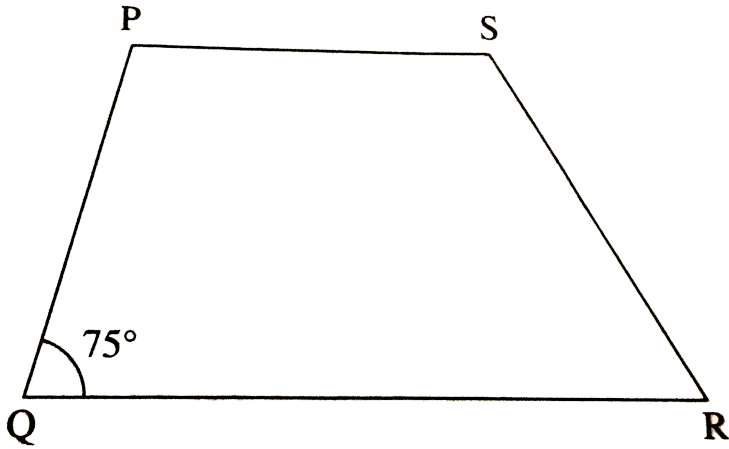
11.

In trapezium, seg PS $\parallel$ seg QR and $\angle PQR = 75^\circ$, then find $\angle$ QPS.

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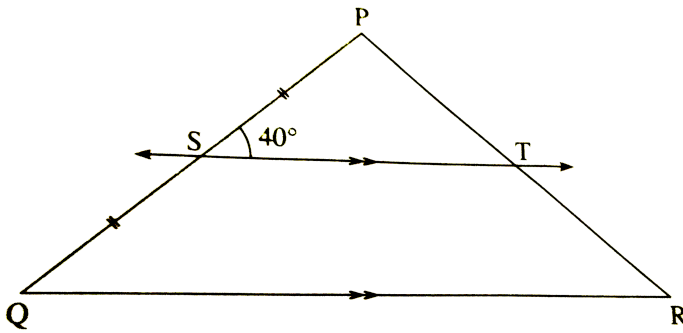
12.

In the figure , S is the midpoint of seg PQ . Line ST || side QR and PT =5 cm , then find PR. Justify your answer.

13. In Parallelogram ABCD , $\angle A = x^\circ$ and B= $(3x + 20)^\circ$, then find x.

14. The diagonals of rhombus are 20 cm and 21 cm respectively , then find the side of the rhombus.

Circle

1. The length of the longest chord of the circle is 17 cm, find the radius of the circle.

2. In the figure , seg AB is the chord of the circle with centre O. if AM =4 cm then find MB

and AB. State your reason.
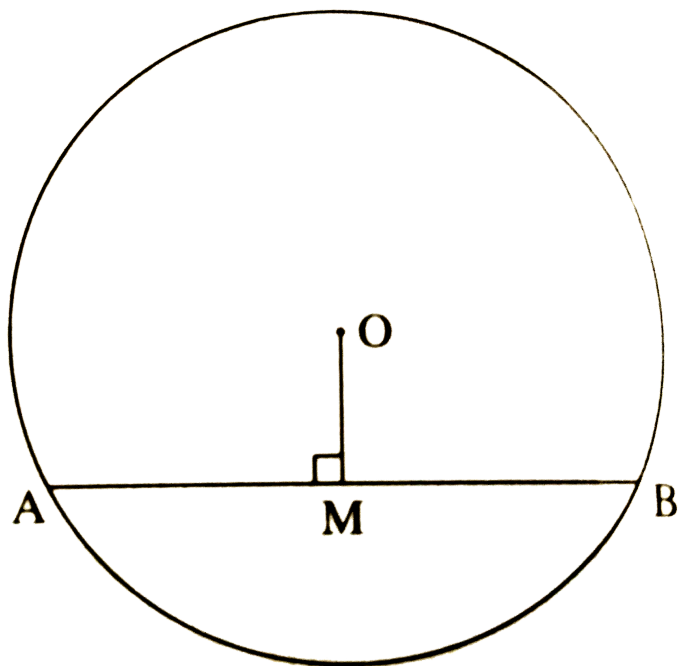
3. Radius of a circle with centre O is 8 cm . Points A and B are such that AO=6 cm and

BO=10 cm . State which of the points A and B is in the interior and exterior of the circle.

4. If the radius of the circumcircle of an equilateral triangle is 6 cm , then find the radius of its incircle.

5. Can we draw a chord of length 15 cm in a circle of radius 7 cm ? Explain your answer .
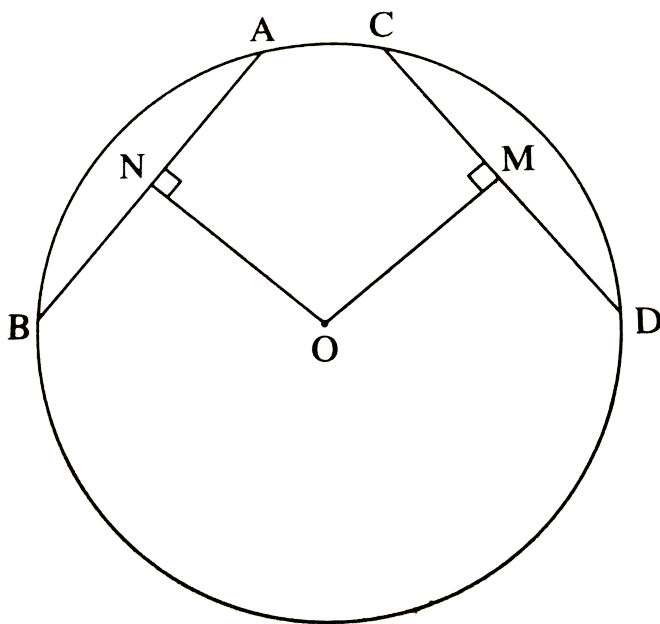
6.

In the figure , O is the center of the

circle.chord AB and CD are congruent . If seg ON $\perp$ chord AB and seg OM $\perp$ chord CD and OM =4cm , then find ON . Justify your answer .

7. The radius of a circle with centere P is 25 cm . The length of a chord of the same circle is 48 cm . Find the distance of the chord from the centre P of the circle.

8. Radius of a circle is 34 cm and the distance of the chord from the centre is 30 cm, find the length of the chord .

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9. In a circle of radius of 6 cm , there are two chords of length 10 cm and 11 cm . Find out which chord will be nearer to centre.

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10. In the figure , O is the centre of the circle ,

AM =16 and AB =4x then find the value of x .
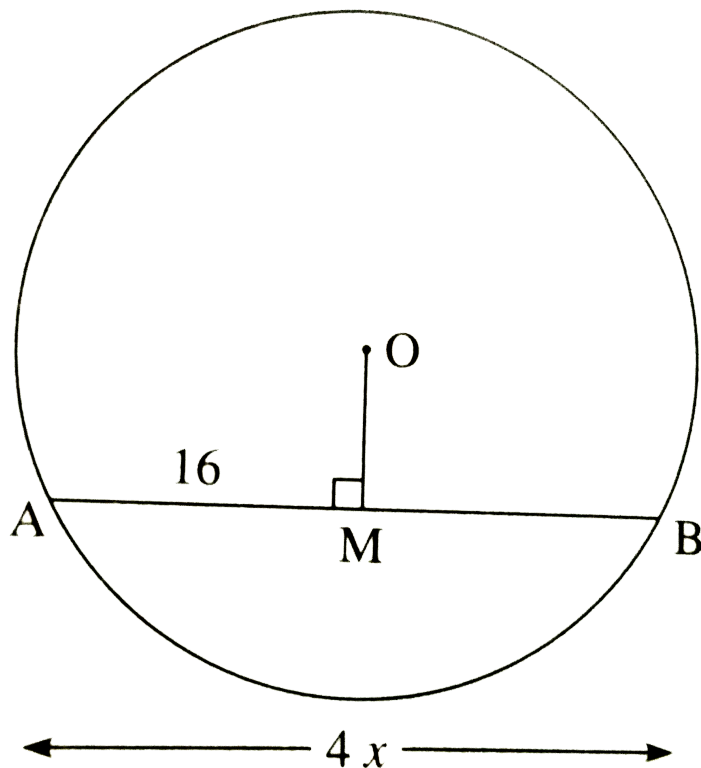
1. State which out of the given points lie on the x -axis ?

A(-2,0),B(3,4),P(5,0),J(0,-8),and R(0,-5).

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2. State the x-coordinate and the y-coordinate of the point P(-5,-7) and state in which quadrant does it lie ?

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3. Write the equation of a line parallel to X-axis at a distance of 4 units from it and above X-axis .

4. Write the equation of the line paraller to the y-axis at a distance of 7 units from it to its left.

5. Y- axis and line x =-4 are paraller lines . What is the distance between them ?

6. what is the point of intersection of the lines having equation x-4=0 and y=-5

7. What is the y-coordinate of every points on X-axis ?

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8. What is the x -coordinate of every point on Y-axis ?

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9. Write the equation of line passing through

P(-5,-6) and paraller of x-axis .

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10. Write the equation of line passing through

Q (4,5) and paraller to Y-axis .

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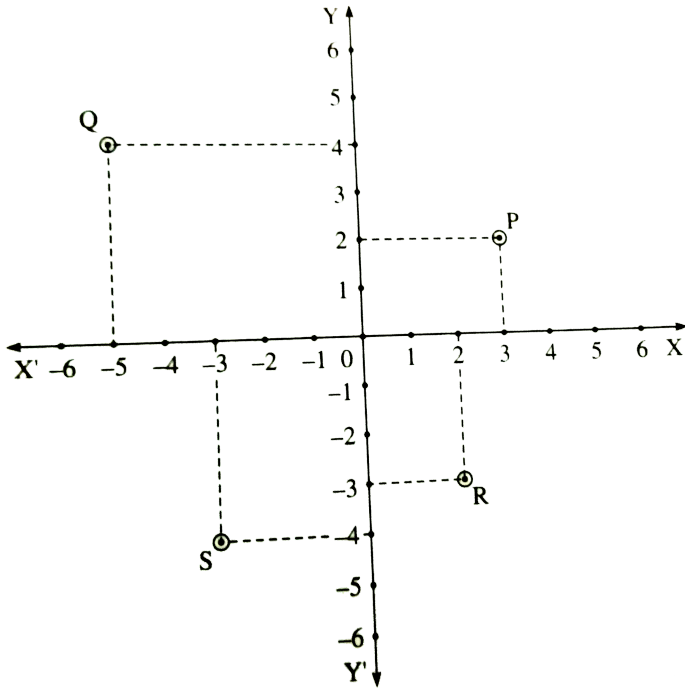
11.

Observe the figure and write the coordinates of points P,Q,R and S.

12. Plot A (2.2,5.5),B(3,0),C(0,4) and D(3.4,-3.8)

on the same graph paper .

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13. Which of the equations given below have

graph paraller to x-axis and which one have

graphs paraller to Y-axis ?

(i)x=-4 (ii)y-4=0 (iii)x-5=0 (iv) y=-3

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14. How many lines are there which are paraller to the x-axis and having a distance 5 units ? Write their equatons.

15. Write the equation of x -axis and y-axis .

16. Without plotting the points on the graph , state in which quadrant or on which axis do the following points lie :

Coordinates of points	Quadrant / Axis
P(5, − 3)	....
Q(0, − 3)	....
R(− 7, − 8)	....
S(− 23, 4)	....

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17. To draw the graph of equation 2x+y=1 , complete the following table :

x	-1	0	
y	3		-3
(x, y)	$(-1, 3)$		

Trigonometry

1. In the figure, $\angle PRQ = 90^\circ$,

write sin P and cos Q.
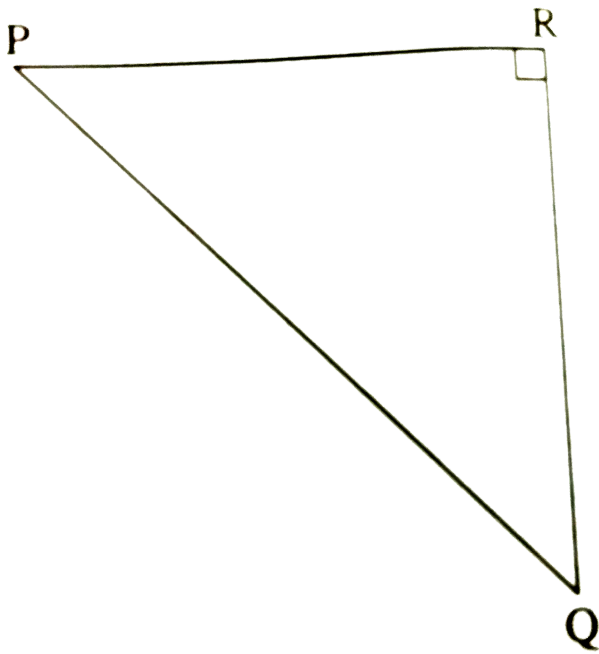
2. In the figure , $\angle XYZ = 90°$, $XY = 3,$

YZ=4 and XZ=5 , then find tan Z and cos X.

X

3

5

Y 4 Z
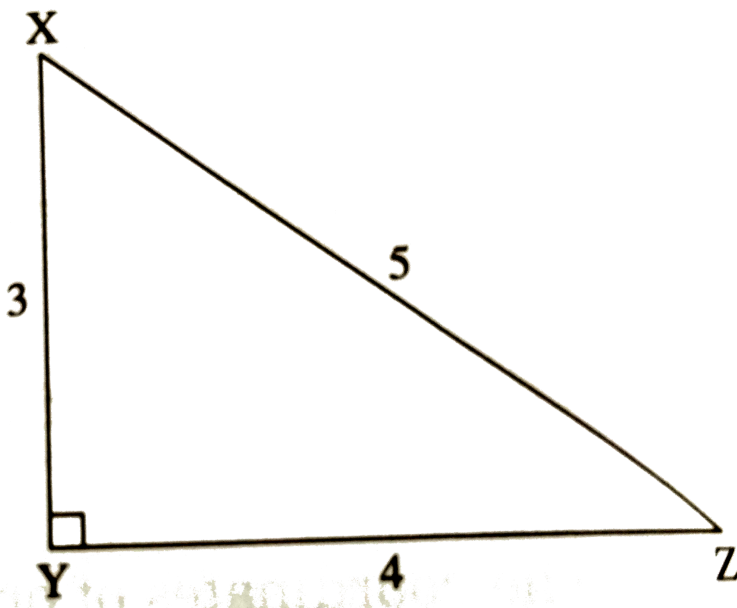
3. What is the value of $\tan 60°$ and $\sin 45°$?

4. Find the value of $\sin^2 30° + \cos° 45°$.

5. Fill in the blanks :

(i) $\sin 32° = \cos$ ....

(ii) $\tan 40° \times \tan. \ldots \ldots \ldots = 1.$

6. if $\sin^2 \theta = \dfrac{1}{2}, then f \in d \cos^2 \theta.$

7. With the help of the given figure , find $\tan$ $\theta \times \tan(90 - \theta)$.
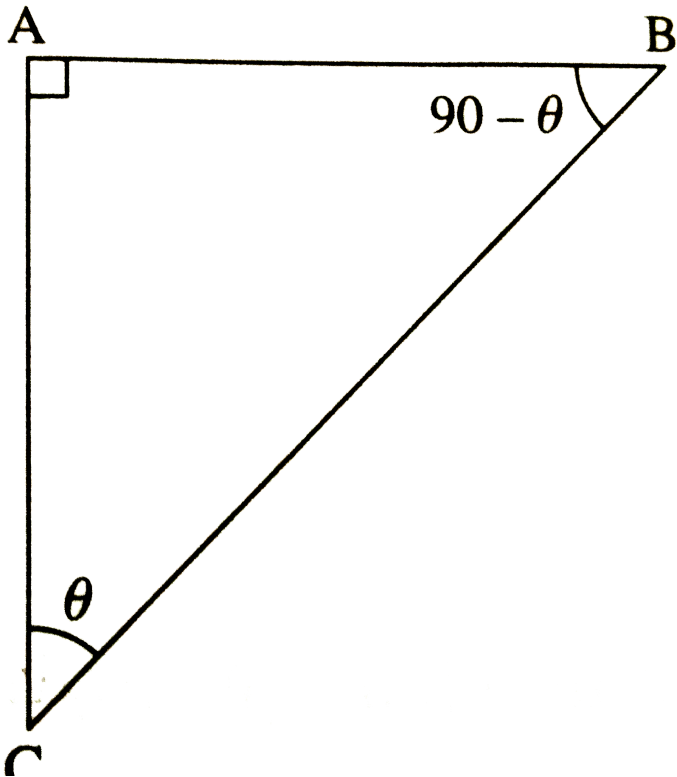
8. In the figure , find sin N ,

cos N, tan W and sin W.
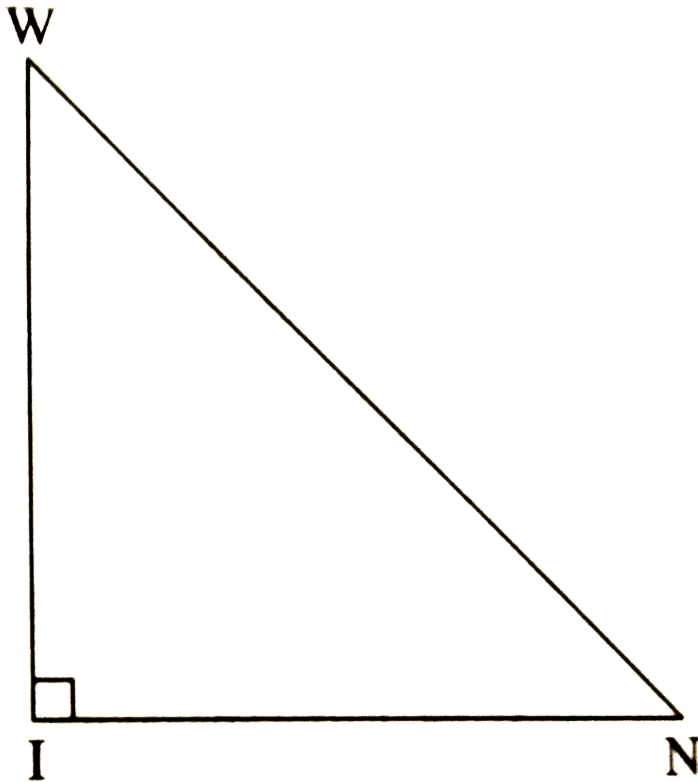
9. If $\cos (40 + x)^\circ = \sin 30^\circ$, find the value of x.

10. If $\sin (A + 20)^\circ = \dfrac{\sqrt{3}}{2}$, then find the value of A.

11. If sin A cos A =1/2, A is the acute angle , then find the value of A .

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

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

14. If $\sin\theta = \dfrac{11}{61}$ then find $\cos\theta$.

15. If $\sin\theta = \dfrac{7}{25}$ and $\cos\theta = \dfrac{24}{25}$, then find $\tan\theta$.

16. Find the value of

$$\sin \theta \times \cos(90 - \theta) + \cos \theta \times \sin(90 - \theta).$$

17. Find the value of $\dfrac{\cos 56^\circ}{\sin 34^\circ}$.

18. If $\cos\theta = \dfrac{15}{17}$, then find $\sin\theta$.

19. Find the value of $\dfrac{\tan 60°}{\sin 60° + \cos 60°}$.

20. If $\tan\theta = 1$ then find the value of θ and $\sin\theta$.

21. Find $\sin 20^\circ - \cos 70^\circ$.

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22. Find the value of $\dfrac{\sin 15^\circ}{\cos 15^\circ} \times \tan 75^\circ$.

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23. Find the value of $\sin \theta$, $6 \cos^2 \theta = 4\dfrac{1}{2}$.

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24. Find the value of $2\sin 30^\circ + \cos 0^\circ + 3\sin 90^\circ$.

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Surface Area And Volume

1. Find the volume of cube of length 10 cm .

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2. Find the area of the vertical faces of the cuboidal room , if its base perimeter is 22 m and height is 10 m.

3. The perpendicular height of a cone is 12 cm and its slant height is 13 cm . Find the radius of the base of the cone .

4. The volume of a cylinder is 900 cm^3 . Find the volume of the cone having same radius and perpendicular height as that of cylinder.

5. Find the radius of the cylinder whose curved surface area is numerically equal to its volume

.

6. The length , breadth and height of a cuboidal shaped box of medicine is 20 cm , 12 cm and 10 cm respectively . Find the total surface area of the box .

7. The radius of the base of cylinder is 20 cm and its height is 13 cm . Find its curved surface area .

8. The curved surface area of the cylinder is 1980 cm^2 and the radius of its base is 15 cm. find the height of the cylinder .

9. The volume of a cone is 6280 cm^3 and its base radius is 20 cm . Find its perpendicular height $(\pi = 3.14)$

10. The curved surface area of the cone is 188.4 cm^2 and its slant height is 10 cm . Find its perpendicular height . $(\pi = 3.14)$

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11. Find the surface area of the sphere of radius 9 cm . $(\pi = 3.14)$

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12. Find the volume of sphere of radius 3.5 cm .

$(\pi = 3.14)$

13. Find the radius of a sphere , if its volume is

$904.32 cm^3$.$(\pi = 3.14)$

14. The area of the vertical faces of a brick is $480 \ cm^2$ .its height and length are 8 cm and 20 cm respectively . Find its breadth .

15. For a cone ,radius =1.4 cm and height =6cm . Find the volume of the cone. $\left(\pi = \dfrac{22}{7} \right)$

16. The volume of a cylinder is 200 cm^3 . Its height is 10 cm . Find the area of its base.

17. Find the volume of hemisphere with diameter 6 cm . $(\pi = 3.14)$