

1. write the value of $\sin 30^\circ$, $\cos 60^\circ$, and $\tan 45^\circ$
2. If $\sin \theta = \frac{1}{2}$ Find θ .
3. Find the value of
 - 1) $\sin^2 30^\circ + \cos^2 30^\circ$
 - 2) $2 \tan 45^\circ + \cos 60^\circ$
4. If $8 \cot A = 15$. Find $\frac{(1+\tan^2 A)}{(1-\tan^2 A)}$.
5. In any ΔABC , If $\cos A = \cos B$, what is the nature of Δ .
6. If $\sin \theta = \cos \theta$, find the value of θ .
7. If $3 \tan A = \sqrt{3}$, find $\frac{(\sin A + \cos A)}{(\sin A - \cos A)}$.
8. If $\sin A + \cos A = \frac{1}{2}$ and $\sin A - \cos A = -\frac{1}{2}$. Find A .
9. If $\sin A = \frac{1}{3}$ find $\operatorname{cosec}^2 A + \frac{1}{\sin^2 A}$.
10. If $\tan(A+B) = \sqrt{3}$ and $\tan(A-B) = 1$ find A and B .
also find $\sin(A+B)$, $\cot(A+B)$

Chapter: Introduction to Trigonometry Angles Only)

Time: 45 Minutes

Marks: 25

Section A: Very Short Answer (1 mark each)

1. Write the value of:

(a) $\sin 60^\circ$ (b) $\cos 30^\circ$ (c) $\tan 45^\circ$ (d) $\sec 60^\circ$ (e) $\cot 0^\circ$

Section B: Short Answer (2 marks each)

2. Prove that:

$$\sin^2 30^\circ + \cos^2 30^\circ = 1$$

3. Find the value of:

$$\tan 30^\circ - \cot 60^\circ + \sin^2 45^\circ$$

4. If $\sin A = 1/3$ and angle A is acute, find angle A and verify all trigonometric ratios of angle A.

Section C: Long Answer (3 marks each)

5. Evaluate: $\frac{\sin 30^\circ + \cos 60^\circ}{\tan 45^\circ}$ 6. Simplify: $\frac{1 + \tan^2 30^\circ}{\sec^2 30^\circ}$ 7. If $\cos A = \sqrt{3}/2$ and A is acute, find angle A and all other trigonometric ratios.

Bonus (2 marks) Fill in the missing values in the table:

Angle ($^\circ$)	$\sin \theta$	$\cos \theta$	$\tan \theta$
0°	?	?	?
30°	?	?	?
48°	?	?	?
90°	?	?	?

1. If p^{th} term of AP is 'q' and q^{th} term is p then find its n^{th} terms.
2. If m^{th} term of A.P is $\frac{1}{n}$ and its n^{th} term is $\frac{1}{m}$ then find mn^{th} term.
3. If 1st and last terms are 8 and 65. and sum of its term(all) is 730. find common difference.
4. A sum of Rs 1500 is to be used to give 10 cash prizes to student of a school. If each prize is Rs 20 less than its preceding prize. find the value of each prize.
5. If 7th term of A.P is $\frac{1}{9}$ and its 9th term is $\frac{1}{7}$, find 63rd term
6. Find the sum of all odd integers b/w 1 and 100 which are divisible by 3.
7. The sum of 1st natural number is $5n^2 - n$. Find n^{th} term and sum of 50 terms.
8. Which term of A.P. 52, 48, 44.... will be First Negative term.
9. If $X = 1 - 6 + 2 - 7 + 3 - 8 + \dots$ to 1000 terms, then find X.
10. If sum of First 'm' terms of A.P is same as the sum of First n terms. then find the sum of (m+n) terms.
11. If b, c, 2b are 3 terms of A.P, then find the ratio of b and c.

Section(A) (1 mark)

1. Write the value of:
 $\sin^2 45 + \cos^2 45$

2. Simplify:
$$\frac{\sin^2 \theta}{1 + \cos \theta} + \frac{1 + \cos \theta}{\sin^2 \theta}$$

Section B (2 marks)

3. Prove:
$$\frac{1 - \cos^2 \theta}{\sin^2 \theta} = 1$$

4. Show that
 $\sec^2 \theta - 1 = \tan^2 \theta$

5. Prove that
$$\frac{\cos \theta}{1 - \sin \theta} + \frac{\cos \theta}{1 + \sin \theta} = 2 \sec \theta$$

Section C (3 marks)

6. Prove that
$$\frac{1 + \tan^2 A}{1 + \cot^2 A} = \tan^2 A$$

7. If $\sec \theta + \tan \theta = P$ then prove that
$$\sec \theta = \frac{P^2 + 1}{2P}$$

Section D (4 mark)

8.
$$\frac{1 + \cos A}{\sin A} + \frac{\sin A}{1 + \cos A} = 2 \operatorname{cosec} A$$

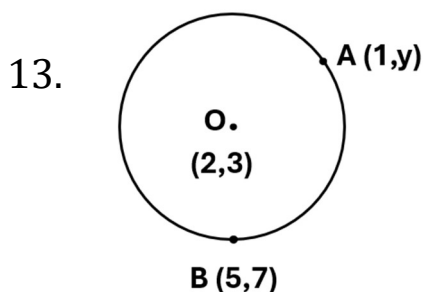
9. Prove that
$$\frac{\sin A + \cos A}{\sin A - \cos A} + \frac{\sin A - \cos A}{\sin A + \cos A} = 2 \sec A$$

10. If $\sin A + \cos A = \sqrt{2} \cos A$. Find
 $\sin A - \cos A$

Co-ordinate

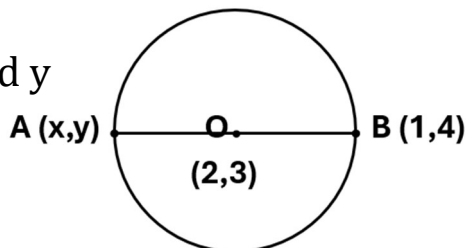
1. Find the distance b/w $A(a, b)$ and $(-a, -b)$.
2. Find the co-ordinates of points of trisection of line joining $A(4, 6)$ and $B(-2, 5)$.
3. Find the ratio in which x-axis divides the line $(2, 8)$ and $(3, 6)$

1. If the distance b/w the points $(x,0)$ and $(0,3)$ is 5 units. then find the value of k .
2. Find the distance b/w $(10\cos 30^\circ, 0)$ and $(0, 10 \cos 60^\circ)$.
3. Find the distance b/w $(-8/5, 2)$ and $(2/5, 2)$.
4. If distance b/w $(4,k)$ and $(1,0)$ is 5 units, then find k .
5. The x coordinate of a point 'P' is twice its y coordinate. If P is equidistant from Q $(2,-5)$ and R $(-3,6)$. find P.
6. If P $(5,2)$, Q $(2,2)$ and R $(-2,a)$ are the vertices of right triangle with $\angle Q=90^\circ$, Find a .
7. Find the distance b/w A $(\cos\theta, \sin\theta)$, B $(\sin\theta, -\cos\theta)$
8. A circle with centre C $(3,5)$ passes through a Point $(-2,4)$. find the diameter of circle.
9. Find distance b/w $(a\cos\theta, a\sin\theta)$ from origin.
10. Find k , If Point $(0,u)$ is equidistant from the Point $(10,k)$ and $(k,8)$.
11. Find x and y if O $(0,0)$, A $(0,2)$, B (x,y) and C $(3,0)$ form a rectangle OABC.
12. Find y such that points A $(5,4)$, B $(5,2)$, C $(2,2)$ and D $(2,5)$ forms a square.



1. Find coordinate of Point P, If P and Q trisect the line segment joining the Points (5,-3) and (-1,3).
2. The line segment joining the points (2,1) and (5,-8) is bisected at Point P and Q. If P lies on $2x-y+k=0$, find k.
3. Find P. If the distance p from (3,4) is $\sqrt{10}$ unit and abscissa of P is double of its ordinate.
4. Find the x if the distance of (0, x) from (3,5) is 5 unit.
5. Find the value of y, If (5,y) (5,5) (1,5) and (1,2) are the vertices of rectangle.
6. Find Point on x-axis which is equidistant from (-2,5) and (2,-3)
7. Find the ratio in which the line segment joining the P(3,-6) and (5,-3) is divided by x-axis.
8. If (-1,2) divides the line segment P(2,5) and Q(x,y) in ratio 3:4. Then find $x^2 + y^2$.
9. Find ratio in which S(u, m) divides P(2,3) and Q(6,-3)
10. Find K. If x axis divides the line segment joining the Points (-4,-6) and (5,2) in K:1.
11. If end points of diameter of a circle are (2,4) and (-3,-1). find radius.

12. Find x and y



1. Find the value of x, If $8x+9$, $6x-2$, $2x-7$ are 3 consecutive terms of A.P.
2. If AP $5, 8, 11, \dots$ has 40 terms. find the sum of last 10 terms.
3. For what value of k will $k+9$, $2k-1$ and $2k+7$ are in A.P.
4. Sum of 1st n terms of A.P is $5n^2+2n$, then find its 2nd term.
5. Find common difference of A.P. $\frac{1}{p}$, $\frac{1-p}{p}$, $\frac{1-2p}{p}$
6. Find the middle term of $6, 13, 20, \dots, -216$
7. If $\frac{1}{x+2}$, $\frac{1}{x+3}$, $\frac{1}{x+5}$ are in A.P. Find x ?
8. Find 5th term of A.P. whose nth term is $3n-5$.
9. If 18, a, b, and -3 are in A.P. then find a+b.
10. The 4th term of A.P is 11. The sum of the 5th and 7th term is 34. find common difference.
11. If the angles of a Δ are in A.P. and smallest is 40° . Find largest.
12. The angle of a quadrilateral in A.P. whose common diff is 10° find the sum of smallest and largest angle.
13. If sum of First 7 term is 49 and that of 17 terms 289. Find the sum of n terms.
14. If ratio of the sum of the First m and n terms of A.P. is $m^2:n^2$ then find the ratio of mth and nth terms.