MATHS

BOOKS - OSWAL PUBLICATION

SAMPLE PAPER 3

Question Bank

1. What is the probability of an impossible event?

A. 0

B. -1

C. 1

D. ∞

Answer: A

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2. What is the perimeter of a semi-circle with radius r?

A. $2\pi r$

B. $2\pi r + 1$

C. $\pi r + 2r$

D. $2\pi r + 2r$

Answer: C

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3. If the circumference and the area of a circle are numerically equal, then diameter of the circle is (a) $\frac{\pi}{2}$ (b) 2π (c) 2 (d) 4

A. 4 units

B. 5 units

C. 2 units

D. $\frac{\pi r}{2} units$

Answer: A

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4. For a circle having radius r, what is the area of quadrant?

A. $\frac{\pi r}{2}$

B. $\left(\pi r^2 + 2r\right)$

C. $\frac{1}{4}\pi r^2$

D. $\frac{1}{2}\pi r^2$

Answer: C

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5. Two positive integers expressed as $p = ab^2$ and $q = a^2b$, where a and b are prime numbers. Then the LCM of p and q is:

A. b^2

B. ab

C. a^3b^3

D. a^2b^2

Answer: D

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6. If $f(x) = x^2 - px + q$ is a quadratic polynomial then, the sum of zeroes of the quadratic polynomial is:

A. $-p$

B. p

C. q

D. $-q$

Answer: B

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7. The decimal expansion of the rational number $\frac{43}{2^4 \times 5^3}$ will terminate after how many places of decimals?

A. 4

B. 3

C. 2

D. 6

Answer: A

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8. Write the zeros of the polynomial $x^2 - x - 6$.

A. $-2, 3$

B. 2, 3

C. 2, 3

D. $-2, \ -3$

Answer: A

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9. Degree of a polynomial in one variable in a polynomial in one variable the highest power of the variable is called its degree .

A. Power

B. Degree

C. Zero

D. None of these

Answer: B

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10. If area of quadrant of a circle is $154cm^2$, then find its radius. $\left(use\pi = \frac{22}{7}\right)$

A. 7

B. 49

C. 14

D. 28

Answer: C

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11. Two friends were born in the year 2000. What is the probability that they have the same birthday?

A. $\frac{1}{366}$

B. $\frac{2}{365}$

C. $\frac{1}{365}$

D. None of these

Answer: A

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12. Find the probability of getting a head in a throw of a coin .

A. 1

B. $\frac{1}{2}$

C. 0

D. None of these

Answer: B

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13. What are the value of x and y for the pair of linear equations $2x + 3y = 2$ and $x - 2y = 8$?

A. 4, 2

B. $-4, 2$

C. $4, \ -2$

D. $-4, \ -2$

Answer: C

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14. If the quadratic equation $x^2 - 3x + k = 0$ has equal roots, then what is the value of k?

A. $\frac{-4}{9}$

B. $\frac{-9}{4}$

C. $\frac{9}{4}$

D. $\frac{4}{9}$

Answer: C

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15. If x=3 is one root of the quadratic equation

$x^2 - 2kx - 6 = 0$, then find the value of k

A. 1

B. $-\frac{1}{2}$

C. 2

D. $\frac{1}{2}$

Answer: D

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16. If P is a prime number, then find the LCM of P^2 and P^3.

A. P^3

B. P

C. P^2

D. P^4

Answer: A

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17. Find the coefficient of x^0 in $x^2 + 3x + 2 = 0.$

A. 1

B. 2

C. 0

D. 3

Answer: B

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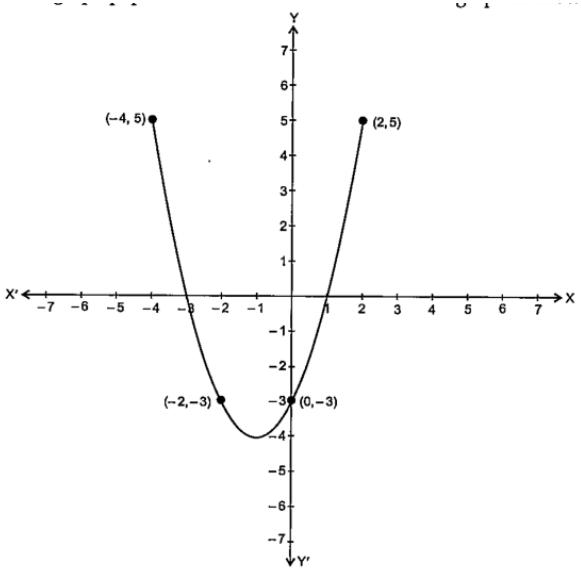
18. Student was given the assignment to prepare a graph of quadratic polynomial $y = x^2 + 2x - 3$. To draw this graph he takes

six values of y corresponding to different values of x. After plotting the points on the graph paper with suitable scale. He obtain the graph as shown below.



What is the graph of a quadratic polynomial called?

A. Hyperbola

B. Parabola

C. Ellipse

D. None of these

Answer: B

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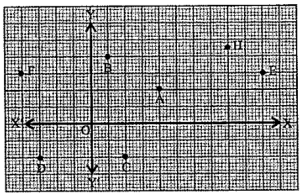
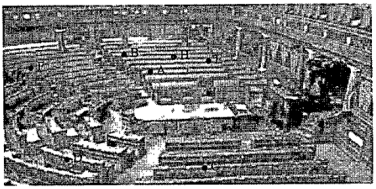
19. Student of class x are on visit of Sansad Bhawan. Teacher assign them the activity to observe and take some pictures to analyses the seating arrangement between various MP and speaker based on coordinate geometry.

The staff tour guide explained various facts related to Math's of Sansad Bhawan to the students, students were surprised when teacher ask them you need to apply coordinate geometry on the seating arrangement of MP's and speaker.





Refer to the points D and C,

Find the distance between the points C and D, if the coordinates of C is (2, – 2) and D(– 2, 3).

A. $\sqrt{30}$

B. 6.4

C. 5

D. 7

Answer: B

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20. If in ΔABC, AB=9 cm, BC=40 cm and AC = 41 cm then the ΔABC is a/an

A. Acute angled triangle

B. Right angled triangle

C. Obtuse angled triangle

D. Isosceles triangle

Answer: B

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21. Find the coordinates of the point which divides the join of $A(-1, 7)$ and $B(4, -3)$ in the ratio $2:3$.

A. (1, 3)

B. (3, 1)

C. (2, 5)

D. (4, -3)

Answer: A

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22. The zeroes of a polynomial p(x) are precisely the x-coordinates of the points, where the graph of y=p(x) intersects the:

A. x-axis

B. y-axis

C. origin

D. none of these

Answer: A

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23. What is the ordinate of a point on the y-axis?

A. A positive number

B. A negative number

C. Zero

D. All the above

Answer: D

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24. If α and β are the zeroes of the polynomial $x^2 - 2\sqrt{3}x + 3$, then the value of $\alpha + \beta - \alpha\beta$:

A. $4\sqrt{3}-3$

B. $2\sqrt{3}-3$

C. $4\sqrt{3}+3$

D. $2\sqrt{3}+3$

Answer: B

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25. The distance between the points (m,-n) and (-m,n) is

A. $\sqrt{m^2+n^2}$

B. m+n

C. $2\sqrt{m^2+n^2}$

D. $\sqrt{2m^2+2n^2}$

Answer: C

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26. The perimeter of a tringle with vertices (0,4),(0,0) and (3,0) is

A. $7 + \sqrt{5}$

B. 5

C. 10

D. 12

Answer: D

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27. The zeroes of the quadratic polynomial $x^2 + 99x + 127$ are:

A. Both positive

B. Both negative

C. One positive one negative

D. Both equal

Answer: B

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28. The distance of the point (-3, 4) from x -axis is

A. 3

B. -3

C. 4

D. 5

Answer: C

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29. Let p be a prime number and a be a positive integer. If p divides a^2; then p divides a.

A. $2k^2$

B. k

C. 3k

D. None of these

Answer: B

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30. A real number a is a zero of the polynomial f(x) if:

A. $f(a) > 0$

B. $f(a) < 0$

C. $f(a) = 0$

D. $f(a) \geq 0$

Answer: C

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31. If an event cannot occur, then its propbability is

A. 1

B. 1/2

C. 3/4

D. 0

Answer: D

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32. If a is a zero of f(x) then, _____ is one of the factors of f(x).

A. (x-2a)

B. (x-a)

C. (x+a)

D. (2x-a)

Answer: B

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33. If A and B are the points $(-6, 7)$ and $(-1, -5)$ respectively, then the distance 2AB is equal to

A. 13

B. 26

C. 169

D. 238

Answer: B

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34. $\sqrt{7}-3-\sqrt{2}$ is:

A. a rational number

B. a natural number

C. equal to zero

D. an irrational number

Answer: D

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35. A man goes 12 m due West and then 9m due North. How far is he from the starting point?

A. 12 m

B. 15 m

C. 18 m

D. 24 m

Answer: B

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36. If $x = a\sin\theta$ and $y = a\cos\theta$ then find the value of $x^2 + y^2$

A. b

B. b^2

C. 1

D. None of these

Answer: B

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37. The point on x-axis which is equidistant from (-4, 0) and (10, 0) is:

A. (7, 0)

B. (5, 0)

C. (0, 0)

D. (3, 0)

Answer: D

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38. If H.C.F. (a, b) = 12 and $a \times b = 1800$, then L.C.M. (a,b)=

A. 120

B. 150

C. 160

D. 200

Answer: B

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39. ABCD is a rectangle whose three vertices are B(4, 0), C(4, 3) and D(0, 3). The length of one of its diagonals is

A. 4

B. 5

C. 3

D. 25

Answer: B

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40. Simplest form of (1+ $\tan^2$A)/(1+`cot^2'A) IS

A. $\sec^2 A$

B. $\cot^2 A$

C. $\tan^2 A$

D. None of these

Answer: C

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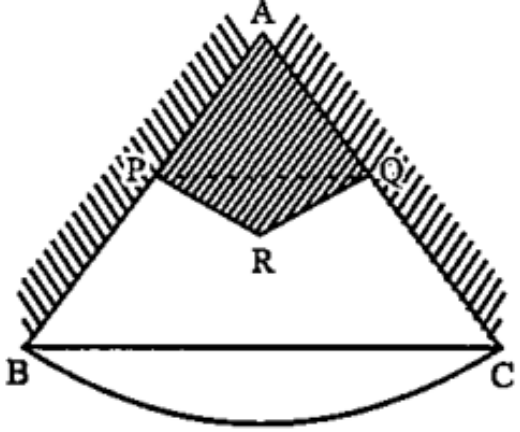
41. Case Study-1: A big match of baseball is going to happen. For this a field need to be prepared. The field is somewhat triangular in shape with a semi-circle as shwon in the figure.



The area in which pitch is to be made is APRQ where P and Q are two points on boundary. As it is an important game, so dimensions need to be perfect and hence $\frac{AP}{AB} = \frac{AQ}{AC}$. We have AP=2x cm, AB=x+4 cm, PQ=x cm and BC=7 cm.

Answer the following questions:

Which of the two similar Δs will be used to calculate the dimensions of the field?

A. ΔPQR and ΔAPQ

B. ΔPQR and ΔABC

C. ΔAPQ and ΔABQ

D. ΔAPQ and ΔABQ

Answer: C

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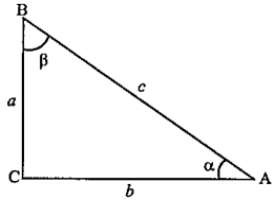
42. Case study-2: There are in total six trignometric ratios, namely sine(sin), cosine (cos), tangent (tan), cosecant (cosec), secant(sec) and cotagent(cot). The trigonometric fuctions cosecant. Secant and cotagent are simply the reciprocals of the trigonometric fuctions sine, cosine and tangent for the angles of a triangle. The values of these trigonometric ratios gives a certain rational for some values of angle (say, α). Some such values for the angle of triangle are shown in the table below:

Angle / Ratio	0°	30°	45°	60°	90°
sin θ	0	$\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{\sqrt{3}}{2}$	1
cos θ	1	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{1}{2}$	0
tan θ	0	$\frac{1}{\sqrt{3}}$	1	$\sqrt{3}$	not defined
cosec θ	not defined	2	$\sqrt{2}$	$\frac{2}{\sqrt{3}}$	1
sec θ	1	$\frac{2}{\sqrt{3}}$	$\sqrt{2}$	2	not defined
cot θ	not defined	$\sqrt{3}$	1	$\frac{1}{\sqrt{3}}$	0



Answer the following questions :

What is the value of $\sin\alpha + \cos\beta$, when the values of α and β are respectively 30° and 60° ?

A. 1

B. 1/2

C. 2

D. 0

Answer: A

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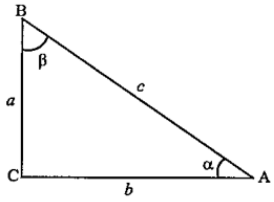

Answer the following questions :

Find the value of $\frac{\left(\sin^2 30^0 - \sin 0^0\right)}{\left(\cos^2 90^\circ - \cos^2 60^\circ\right)}$.

A. 0

B. -1

C. 1

D. 1/2

Answer: B

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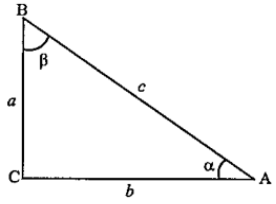

Answer the following questions :

If $\alpha = 90^\circ$ and $\beta = 60^\circ$, determine the value of $\sin^2 \alpha + \sin^2 \beta$.

A. $\frac{4}{5}$

B. $\frac{3}{5}$

C. $\frac{7}{4}$

D. $\frac{5}{3}$

Answer: C

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45. Case study-2: There are in total six trignometric ratios, namely sine(sin), cosine (cos), tangent (tan), cosecant (cosec), secant(sec) and cotagent(cot). The trigonometric fuctions cosecant. Secant and cotagent are simply the reciprocals of teh

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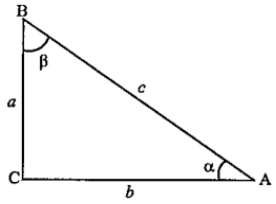

Answer the following questions :

If both α and $\beta = 60^\circ$, find the value of $\sin^2\alpha + \cos^2\beta$.

A. 1

B. 2

C. -1

D. -2

Answer: A

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46. Case study-2: There are in total six trignometric ratios, namely sine(sin), cosine (cos), tangent (tan), cosecant (cosec), secant(sec) and cotagent(cot). The trigonometric fuctions cosecant. Secant and cotagent are simply the reciprocals of teh trigonometric fuctions sine, cosine and tangent for the angles of a triangle. The values of these trigonometric ratios gives a certain rational for some values of angle (say, α). Some such values for the angle of triangle are shown in the table below:

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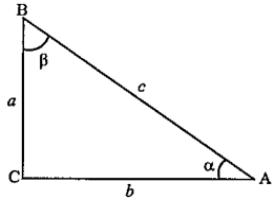

Answer the following questions :

If in the triangle ABC the lengths of sides AB and BC are in the ration of 13:5, find the value of cosec α.

A. $\frac{5}{13}$

B. $\frac{8}{13}$

C. $\frac{8}{13}$

D. $\frac{13}{5}$

Answer: D

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47. What is the probability of an impossible event?

A. 0

B. -1

C. 1

D. ∞

Answer: A

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48. What is the perimeter of a semi-circle with radius r?

A. $2\pi r$

B. $2\pi r + 1$

C. $\pi r + 2r$

D. $2\pi r + 2r$

Answer: C

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49. If the perimeter and the area of a circle are numerically equal, then the diameter of the circle is

A. 4 units

B. 5 units

C. 2 units

D. $\frac{\pi r}{2} units$

Answer: A

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50. For a circle having radius r, what is the area of quadrant?

A. $\frac{\pi r}{2}$

B. $(\pi r^2 + 2r)$

C. $\frac{1}{4}\pi r^2$

D. $\frac{1}{2}\pi r^2$

Answer: C

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51. If two positive integers p and q can be expressed as $p = ab^2$ and $q = a^3b$ where a and b are prime numbers, then the LCM (p,q) is

A. b^2

B. ab

C. a^3b^3

D. a^2b^2

Answer: D

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52. If $f(x) = x^2 - px + q$ is a quadratic polynomial then, the sum of zeroes of the quadratic polynomial is:

A. $-p$

B. p

C. q

D. $-q$

Answer: B

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53. The decimal expansion of the rational number $\frac{43}{2^4 \times 5^3}$ will terminate after how many places of decimals?

A. 4

B. 3

C. 2

D. 6

Answer: A

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54. Write the zeros of the polynomial $x^2 - x - 6$.

A. $-2, 3$

B. 2, 3

C. 2, 3

D. $-2, \ -3$

Answer: A

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55. Name the highest power of a variable in a polynomial.

A. Power

B. Degree

C. Zero

D. None of these

Answer: B

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56. If area of quadrant of a circle is $154cm^2$, then find its radius. $\left(use\pi = \frac{22}{7}\right)$

A. 7

B. 49

C. 14

D. 28

Answer: C

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57. Two friends were born in the year 2000. What is the probability that they have the same birthday?

A. $\frac{1}{366}$

B. $\frac{2}{365}$

C. $\frac{1}{365}$

D. None of these

Answer: A

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58. Find the probability of getting a head in a throw of a coin .

A. 1

B. $\frac{1}{2}$

C. 0

D. None of these

Answer: B

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59. What are the value of x and y for the pair of linear equations $2x + 3y = 2$ and $x - 2y = 8$?

A. 4, 2

B. $-4, 2$

C. $4, \ -2$

D. $-4, \ -2$

Answer: C

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60. If the quadratic equation $x^2 - 3x + k = 0$ has equal roots, then what is the value of k?

A. $\frac{-4}{9}$

B. $\frac{-9}{4}$

C. $\frac{9}{4}$

D. $\frac{-4}{9}$

Answer: C

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61. If x=3 is one root of the quadratic equation

$x^2 - 2kx - 6 = 0$, then find the value of k

A. 1

B. $-\frac{1}{2}$

C. 2

D. $\frac{1}{2}$

Answer: D

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62. If P is a prime number, then find the LCM of P^2 and P^3.

A. P^3

B. P

C. P^2

D. P^4

Answer: A

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63. Find the coefficient of x^0 in $x^2 + 3x + 2 = 0$.

A. 1

B. 2

C. 0

D. 3

Answer: B

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64. Student was given the assignment to prepare a graph of quadratic polynomial $y = x^2 + 2x - 3$. To draw this graph he takes

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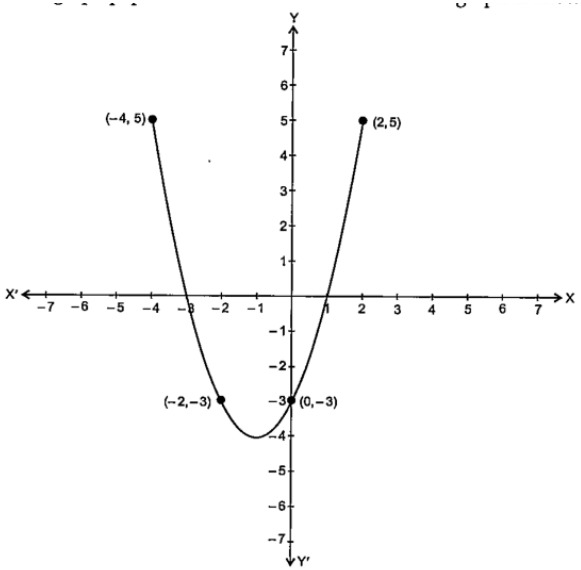

What is the graph of a quadratic polynomial called?

A. Hyperbola

B. Parabola

C. Ellipse

D. None of these

Answer: B

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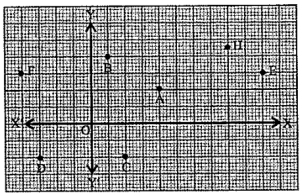
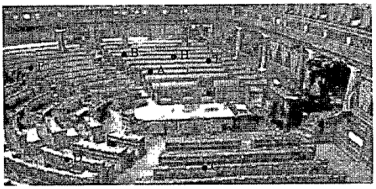
65. Student of class x are on visit of Sansad Bhawan. Teacher assign them the activity to observe and take some pictures to analyses the seating arrangement between various MP and speaker based on coordinate geometry.

The staff tour guide explained various facts related to Math's of Sansad Bhawan to the students, students were surprised when teacher ask them you need to apply coordinate geometry on the seating arrangement of MP's and speaker.





Refer to the points D and C,

Find the distance between the points C and D, if the coordinates of C is (2, – 2) and D(– 2, 3).

A. $\sqrt{30}$

B. 6.4

C. 5

D. 7

Answer: B

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66. If in ΔABC, AB=9 cm, BC=40 cm and AC = 41 cm then the ΔABC is a/an

A. Acute angled triangle

B. Right angled triangle

C. Obtuse angled triangle

D. Isosceles triangle

Answer: B

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67. Find the coordinates of the point which divides the join of $A(-1, 7)$ and $B(4, -3)$ in the ratio $2:3$.

A. (1, 3)

B. (3, 1)

C. (2, 5)

D. (4, -3)

Answer: A

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68. The zeroes of a polynomial p(x) are precisely the x-coordinates of the points, where the graph of y=p(x) intersects the:

A. x-axis

B. y-axis

C. origin

D. none of these

Answer: A

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69. What is the ordinate of a point on the y-axis?

A. A positive number

B. A negative number

C. Zero

D. All the above

Answer: D

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70. If α and β are the zeroes of the polynomial $x^2 - 2\sqrt{3} + 3$, then the value of $\alpha + \beta - \alpha\beta$:

A. $4\sqrt{3}-3$

B. $2\sqrt{3}-3$

C. $4\sqrt{3}+3$

D. $2\sqrt{3}+3$

Answer: B

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71. The distance between the points (m,-n) and (-m,n) is

A. $\sqrt{m^2+n^2}$

B. m+n

C. $2\sqrt{m^2+n^2}$

D. $\sqrt{2m^2+2n^2}$

Answer: C

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72. The perimeter of a tringle with vertices (0,4),(0,0) and (3,0) is

A. $7 + \sqrt{5}$

B. 5

C. 10

D. 12

Answer: D

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73. The zeroes of the quadratic polynomial $x^2 + 99x + 127$ are:

A. Both positive

B. Both negative

C. One positive one negative

D. Both equal

Answer: B

 Watch Video Solution

74. The distance of the point (-3, 4) from x -axis is

A. 3

B. -3

C. 4

D. 5

Answer: C

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75. Theorem 1.3 : Let p be a prime number. If p divides a2 , then p divides a, where a is a positive integer.

A. $2k^2$

B. k

C. 3k

D. None of these

Answer: B

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76. A real number a is a zero of the polynomial f(x) if:

A. $f(a) > 0$

B. $f(a) < 0$

C. $f(a) = 0$

D. $f(a) \geq 0$

Answer: C

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77. If an event cannot occur, then its propbability is

A. 1

B. 1/2

C. 3/4

D. 0

Answer: D

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78. If a is a zero of f(x) then, _____ is one of the factors of f(x).

A. (x-2a)

B. (x-a)

C. (x+a)

D. (2x-a)

Answer: B

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79. If A and B are the points $(-6, 7)$ and $(-1, -5)$ respectively, then the distance 2AB is equal to

A. 13

B. 26

C. 169

D. 238

Answer: B

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80. $\sqrt{7}-3-\sqrt{2}$ is:

A. a rational number

B. a natural number

C. equal to zero

D. an irrational number

Answer: D

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81. A man goes 12 m due West and then 9m due North. How far is he from the starting point?

A. 12 m

B. 15 m

C. 18 m

D. 24 m

Answer: B

Watch Video Solution

82. If $x = a\sin\theta$ and $y = a\cos\theta$ then find the value of $x^2 + y^2$

A. b

B. b^2

C. 1

D. None of these

Answer: B

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83. The point on x-axis whichis equidistant from (-4, 0) and (10, 0) is:

A. (7, 0)

B. (5, 0)

C. (0, 0)

D. (3, 0)

Answer: D

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84. If H.C.F. (a, b) = 12 and $a \times b = 1800$, then L.C.M. (a,b)=

A. 120

B. 150

C. 160

D. 200

Answer: B

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85. ABCD is a rectangle whose vertices are B(4,0), C(4, 3) and D(0, 3). The length of one of its diagonals is:

A. 4

B. 5

C. 3

D. 25

Answer: B

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86. $\frac{(1+\tan^2 A)}{(1+\cot^2 A)} = ?$

A. $\sec^2 A$

B. $\cot^2 A$

C. $\tan^2 A$

D. None of these

Answer: C

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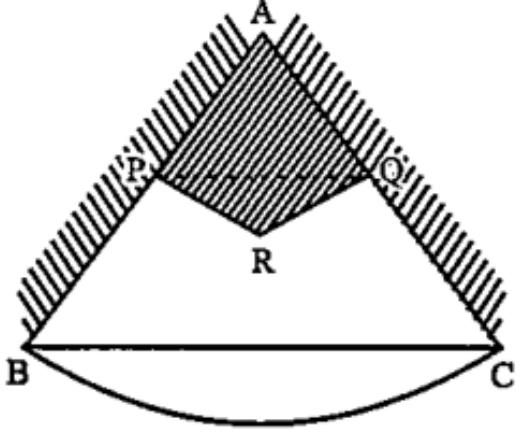
87. Case Study-1: A big match of baseball is going to happen. For this a field need to be prepared. The field is somewhat triangular in shape with a semi-circle as shwon in the figure.



The area in which pitch is to be made is APRQ where P and Q are two points on boundary. As it is an important game, so dimensions need to be perfect and hence $\frac{AP}{AB} = \frac{AQ}{AC}$. We have AP=2x cm, AB=x+4 cm, PQ=x cm and BC=7 cm.

Answer the following questions:

Which of the two similar Δs will be used to calculate the dimensions of the field?

A. ΔPQR and ΔAPQ

B. ΔPQR and ΔABC

C. ΔAPQ and ΔABQ

D. ΔAPQ and ΔABQ

Answer: B

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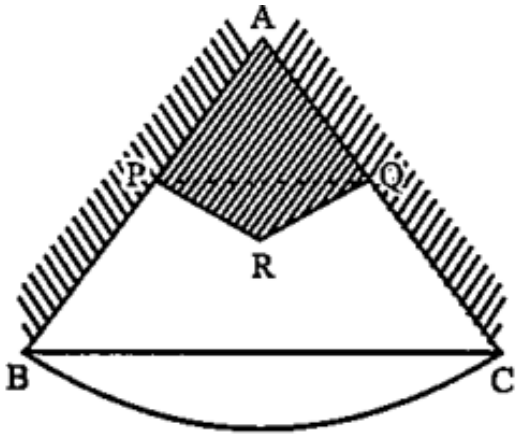

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have AP=2x cm, AB=x+4 cm, PQ=x cm and BC=7 cm.

Answer the following questions:

Which criteria of similarity is used for the above Δs?

A. SSS

B. AA

C. RHS

D. SAS

Answer: B

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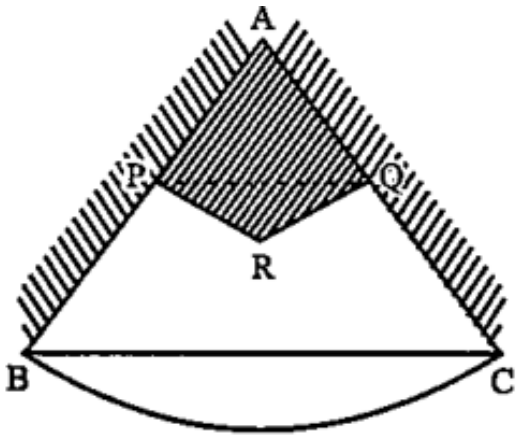

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it is an important game, so dimensions need to be perfect and hence $\frac{AP}{AB} = \frac{AQ}{AC}$. We have AP=2x cm, AB=x+4 cm, PQ=x cm and BC=7 cm.

Answer the following questions:

To help the pitchmaker, transform the relation $\frac{AP}{AB} = \frac{PQ}{BC}$, into a quadratic equation in x.

A. $x^2 - 10x = 0$

B. $x^2 - 14x + 2 = 0$

C. $x^2 + 14x - 2 = 0$

D. None of these

Answer: A

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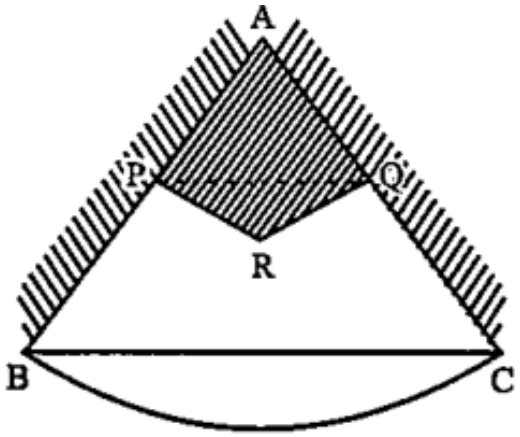

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Answer the following questions:

Find the value of the 'x' in the equation $x_2 - 10x = 0$.

A. 8

B. 10

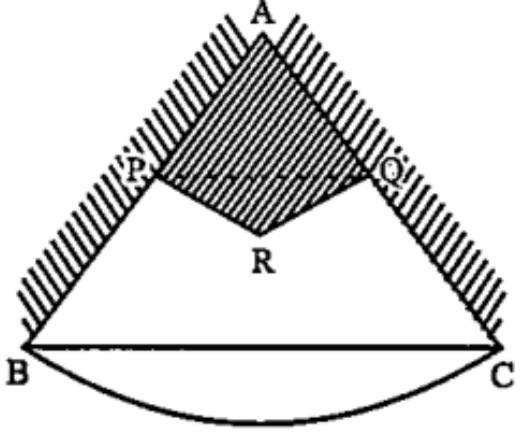
C. 7

D. 4

Answer: B

View Text Solution

91. Case Study-1: A big match of baseball is going to happen. For this a field need to be prepared. The field is somewhat triangular in shape with a semi-circle as shwon in the figure.



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Answer the following questions:

What will be length of the side AP?

A. 10 cm

B. 20 cm

C. 5 cm

D. 8 cm

Answer: B

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92. Case study-2: There are in total six trignometric ratios, namely sine(sin), cosine (cos), tangent (tan), cosecant (cosec),

secant(sec) and cotagent(cot). The trigonometric fuctions cosecant. Secant and cotagent are simply the reciprocals of teh trigonometric fuctions sine, cosine and tangent for the angles of a triangle. The values of these trigonometric ratios gives a certain rational for some values of angle (say, α). Some such values for the angle of triangle are shown in the table below:

Angle / Ratio	0°	30°	45°	60°	90°
sin θ	0	$\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{\sqrt{3}}{2}$	1
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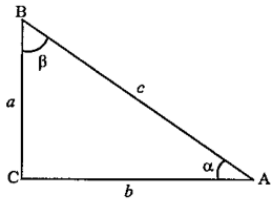
tan θ	0	$\frac{1}{\sqrt{3}}$	1	$\sqrt{3}$	not defined
cosec θ	not defined	2	$\sqrt{2}$	$\frac{2}{\sqrt{3}}$	1
sec θ	1	$\frac{2}{\sqrt{3}}$	$\sqrt{2}$	2	not defined
cot θ	not defined	$\sqrt{3}$	1	$\frac{1}{\sqrt{3}}$	0



Answer the following questions :

What is the value of $\sin\alpha + \cos\beta$, when the values of α and β are respectively 30° and 60° ?

A. 1

B. 1/2

C. 2

D. 0

Answer: A

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93. Case study-2: There are in total six trignometric ratios, namely sine(sin), cosine (cos), tangent (tan), cosecant (cosec), secant(sec) and cotagent(cot). The trigonometric fuctions cosecant. Secant and cotagent are simply the reciprocals of teh trigonometric fuctions sine, cosine and tangent for the angles of a triangle. The values of these trigonometric ratios gives a certain rational for some values of angle (say, α).

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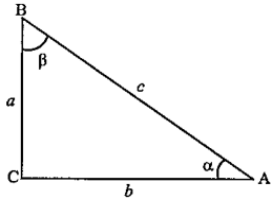

Answer the following questions :

Find the value of $\frac{(\sin^2 30^0 - \sin 0^0)}{(\cos^2 90^\circ - \cos^2 60^\circ)}$.

A. 0

B. -1

C. 1

D. 1/2

Answer: B

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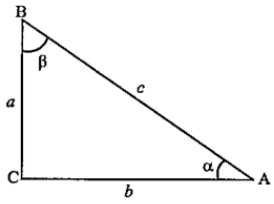

Answer the following questions :

If $\alpha = 90^\circ$ and $\beta = 60^\circ$, determine the value of $\sin^2 \alpha + \sin^2 \beta$.

A. $\frac{4}{5}$

B. $\frac{3}{5}$

C. $\frac{7}{4}$

D. $\frac{5}{3}$

Answer: C

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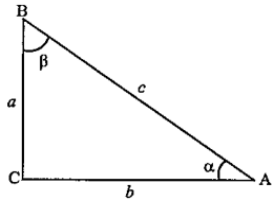

Answer the following questions :

If both α and $\beta = 60^\circ$, find the value of $\sin^2 \alpha + \cos^2 \beta$.

A. 1

B. 2

C. -1

D. -2

Answer: A

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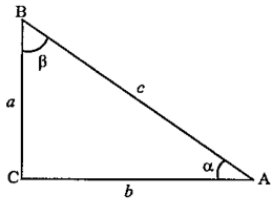

Answer the following questions :

If in the triangle ABC the lengths of sides AB and BC are in the ration of 13:5, find the value of cosec α.

A. $\frac{5}{13}$

B. $\frac{8}{13}$

C. $\frac{13}{8}$

D. $\frac{13}{5}$

Answer: D

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Section A

1. Prove that the tangents drawn at the ends of a diameter of a circle are parallel.

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2. For what value of p are $2p+1,\ 13,\ 5p-3$ are three consecutive terms of an A.P.?

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3. $abx^2 + \left(b^2 - ac\right)x - bc = 0$

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4. Two types of water tankers are available in a shop. One is in a cubic form of dimensions $1m \times 1m \times 1m$ and another is in the cylindrical form of height 1 m and diameter 1 m. Calculate the volume of both the containers. (Use π = 3.14)

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5. Find the mode of the following frequency distribution:

Class Interval	0–10	10-20	20-30	30-40	40-50	50-60
Frequency	2	8	10	5	4	3

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6. Find the number of natural numbers between 101 and 999 which are divisible by both 2 and 5.

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Section B

1. Find the mean and median for the following data:

Class	0-4	4-8	8-12	12-16	16-20
Frequency	3	5	9	5	3

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2. The angle of depression of a car standing on the ground from the top of a 75 m high tower

is 30°. Find the distance of the car from the base of the tower (in m).

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Section C

1. The horizontal distance between two poles is 15 m. The angle of depression of the top of the first pole as seen from the top of the second pole is 30°. If the height of the second

pole is 24 m, find the height of the first pole.

[Use $\sqrt{3}$ = 1.732]

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2. Amit was playing a number card game. In the game, some number cards (having both +ve or -ve numbers) are arranged in a row such that they are following an arithmetic progression. On his first turn, Amit picks up 6th and 14th card and finds their sum to be -76. On the second turn he picks up 8th and

16th card and finds their sum to be -96.

Based on the above information, answer the following questions.

What is the difference between the numbers on any two consecutive cards?

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Based on the above information, answer the following questions.

What is the sum of 9^{th} and 15^{th} card ?

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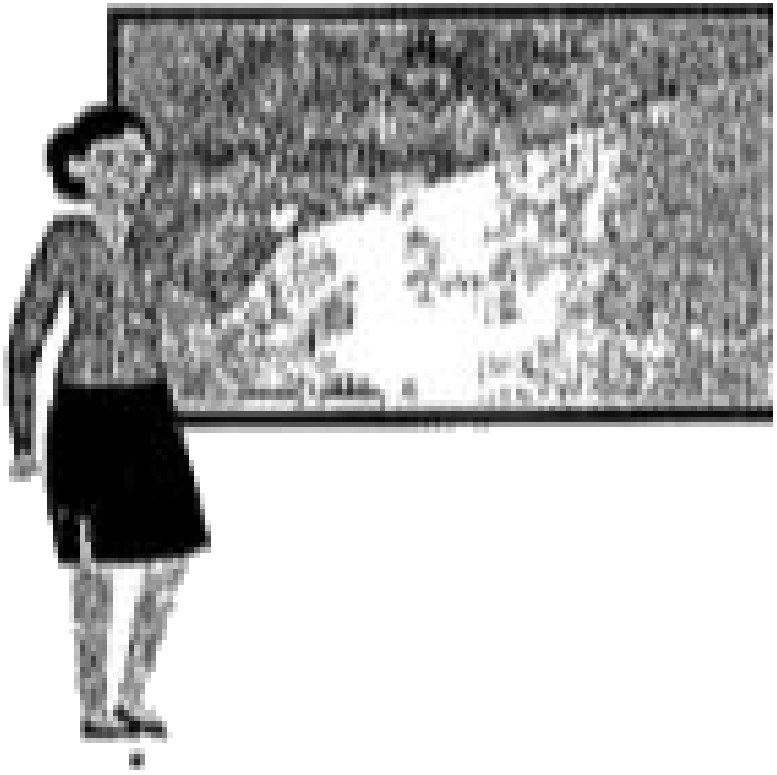
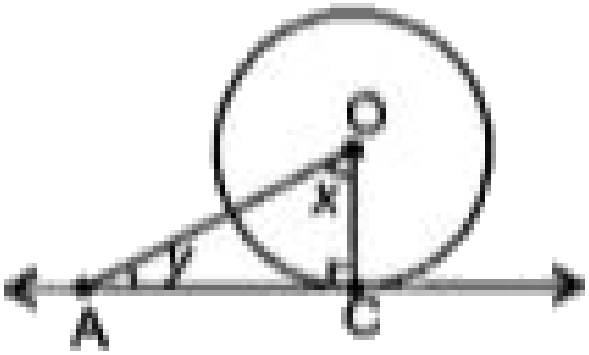
4. For class of 10 students, a teacher planned a game for the revision of chapter circles with

some questions written on the board, which are to be answered by the students. For each correct answer, a student will get a reward. Some of the questions are given below.



In the given figure, $x + y$ =



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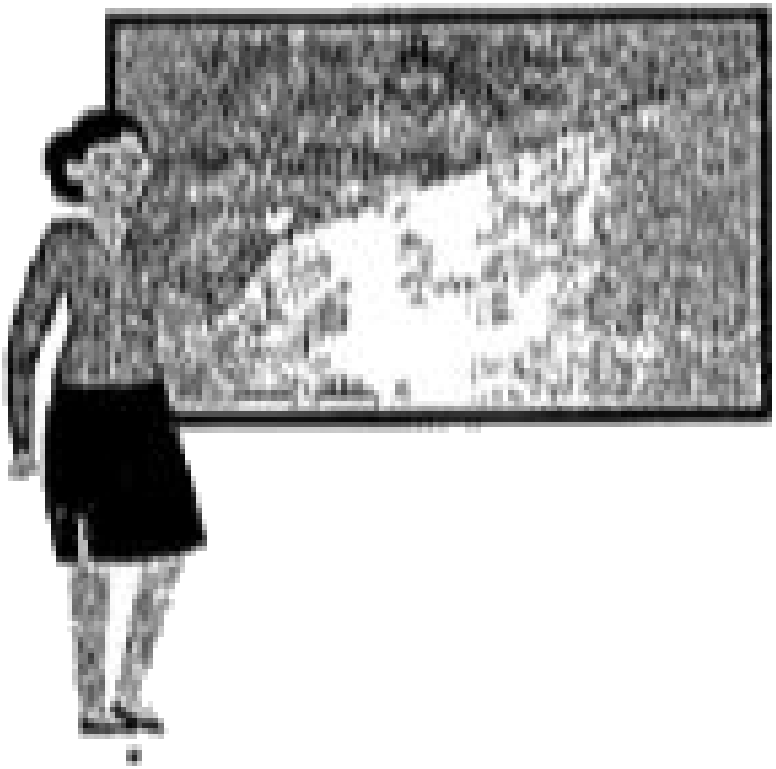

If PA and PB are two tangents drawn to a circle with centre O from P such that $\angle APB = 50^\circ$, then $\angle OAB$=

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