



Class X **NIDAR**

"Most Expected Questions"

Mathematics

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Q 1. Prove that $\sqrt{2} + \sqrt{3}$ is irrational number.

Q 2. Find the least number which when divided by 12, 16, and 24 leaves the remainder 7 in each case. (CBSE 2023-24)

Q 3. If α and β are the zeroes of the polynomial $4x^2 - 3x - 7$, then $1/\alpha + 1/\beta$ is equal to:

- (a) $7/3$
- (b) $-7/3$
- (c) $3/7$
- (d) $-3/7$

Q 4. If α and β are the zeroes of a polynomial $x^2 - 4\sqrt{3}x + 3 = 0$, then find the value of $\alpha + \beta - \alpha\beta$. (CBSE 2015)

Q 5. If one zero of the polynomial $p(x) = 6x^2 + 37x - (k-2)$ is reciprocal of the other, then find the value of k

- (a) -4
- (b) -6
- (c) 6
- (d) 4

Q6. Assertion(A): $(2 - \sqrt{3})$ is one zero of the quadratic polynomial then other zero will be $(2 + \sqrt{3})$

Reason(R): Irrational zeroes always occurs in pairs

- (a) Both A and R are true and R is the correct explanation of A.
- (b) Both A and R are true but R is not the correct explanation of A.
- (c) A is true but R is false.
- (d) Both A and R are false.

Q7. Solve by using Method of Substitution:

$$\frac{2x}{a} + \frac{y}{b} = 2$$

$$\frac{x}{a} - \frac{y}{b} = 4$$

Q8. Solve:

$$217x + 131y = 913$$

$$131x + 217y = 827$$

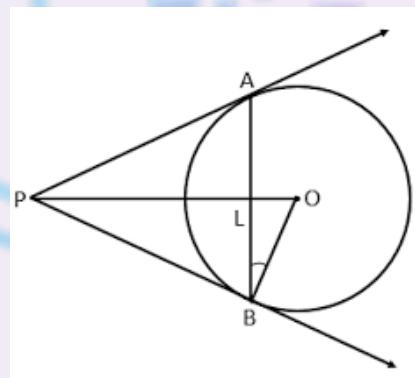
Q9. A train covered a certain distance at a uniform speed. If the train would have been 6 km/hr faster, it would have taken 4 hours less than the scheduled time. And if the train were slower by 6 km/hr; it would have taken 6 hours more than the scheduled time. Find the length of the journey. (CBSE 2002)

Q10. Find the value of k if the roots are real and equal:

$$x^2 + k(2x + k - 1) + 2 = 0$$

Q11. A circle touches all the four sides of a quadrilateral ABCD Prove that $AB + CD = BC + DA$

Q12. In figure, AB is a chord of length 16 cm of a circle with a radius of 10 cm. The tangents at points A and B intersect at a point P. Find the length of PA (CBSE 2010)



Q13. If $\sqrt{3} \sin \theta - \cos \theta = 0$ and $0^\circ < \theta < 90^\circ$, Find the value of θ .

Q14. Express the ratios $\cos A$, $\tan A$ and $\sec A$ in terms of $\sin A$

Q15. If $\operatorname{cosec} \theta + \cot \theta = x$, Find the value of $\operatorname{cosec} \theta - \cot \theta$?

Q16. If $\sec \theta + \tan \theta = p$, Find the value of $\cosec \theta$? (CBSE 2013)

Q17. The shadow of a tower standing on a level ground is found to be 40m longer When the Sun's altitude is 30° than it was 60° . Find the height of the tower and the length of original shadow. (Use $\sqrt{3} = 1.73$)



SOLUTION

Ans 1. LHS=RHS

Ans 2. $x = 55$

Ans 3. (d) $-3/7$

Ans 4. $\alpha + \beta - \alpha\beta = 4\sqrt{3} - 3$

Ans 5. (a) -4

Ans 6. (a) Both A and R are true and R is the correct explanation of A.

Ans 7. $x = 2a; y = -2b$

Ans 8. $x = 3; y = 2$

Ans 9. 720 km

Ans 10. $k = 2$

Ans 11. LHS = RHS

Ans 12. $PA = 40/3$ or 13.33

Ans 13. $\theta = 30^\circ$

Ans 14. $\cos A = \sqrt{1 - \sin^2 A}$

$\tan A = \sin A / \sqrt{1 - \sin^2 A}$

$\sec A = 1 / \sqrt{1 - \sin^2 A}$

Ans 15. $\operatorname{cosec} \theta - \cot \theta = 1/x$

Ans 16. $\operatorname{cosec} \theta = (p^2 + 1) / (p^2 - 1)$

- Ans 17. Height of the tower = 34.6 m
- Length of the original (shorter) shadow = 20 m

