

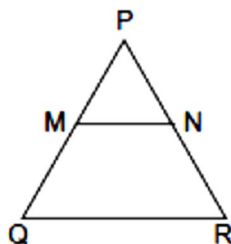
KENDRIYA VIDYALAYA GACHIBOWLI , GPRA CAMPUS HYD - 32
REVISION TEST - 03 FOR CLASS X BOARD EXAM 2021

Max. marks: 50

Time Allowed: 2 hrs

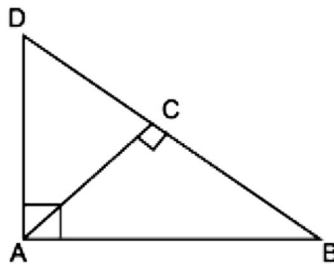
SECTION – A (1 MARK EACH)

1. The HCF and LCM of two numbers are 9 and 360 respectively. If one number is 45, write the other number.
2. For what value of k , are the roots of the quadratic equation $3x^2 + 2kx + 27 = 0$ real and equal.
3. In an AP, if $a = 3$, $n = 8$, $S_n = 192$, find d .
4. If the product of the zeroes of $x^2 - 3kx + 2k^2 - 1$ is 7, then find the values of k .
5. Find the number of solutions of the following pair of linear equations:
$$x + 2y - 8 = 0; 2x + 4y = 16$$
6. If the distance between the points $(4, p)$ and $(1, 0)$ is 5 units, then the value of p .
7. If $\tan \theta = \frac{1}{\sqrt{3}}$, then evaluate $\frac{\cos ec^2 \theta - \sec^2 \theta}{\cos ec^2 \theta + \sec^2 \theta}$.
8. In the given below figure, $MN \parallel QR$ and $PM = 3$ cm, $MQ = 4$ cm, $PN = 6$ cm, $PR = x$ cm, then find x .



SECTION – B (2 MARKS EACH)

9. In figure, $\triangle ABD$ is a right triangle, right angled at A and $AC \perp BD$. Prove that $AB^2 = BC \cdot BD$.

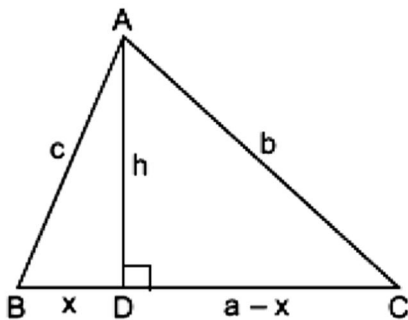


10. If the point $C(-1, 2)$ divides the line segment AB in the ratio $3 : 4$, where the coordinates of A are $(2, 5)$, find the coordinates of B .
11. Find the ratio between the LCM and HCF of 5, 15 and 20.
12. Find the zeroes of the quadratic polynomial $\sqrt{3}x^2 - 8x + 4\sqrt{3}$.
13. Solve the following equation by using quadratic formula: $9x^2 - 12x + 4 = 0$.
14. Find 10th term from end of the AP 4, 9, 14, ..., 254.

SECTION – C (3 MARKS EACH)

15. Show that $\frac{1}{2}$ and $\frac{-3}{2}$ are the zeroes of the polynomial $4x^2 + 4x - 3$ and verify the relationship between zeroes and coefficients of polynomial.

16. A speed of a boat in still water is 11 km/hour. It can go 12 km upstream and return downstream to the original point in 2 hours 45 minutes. Find the speed of the stream.
17. In the given figure, $\angle B < 90^\circ$ and segment $AD \perp BC$, show that $b^2 = h^2 + a^2 + x^2 - 2ax$.



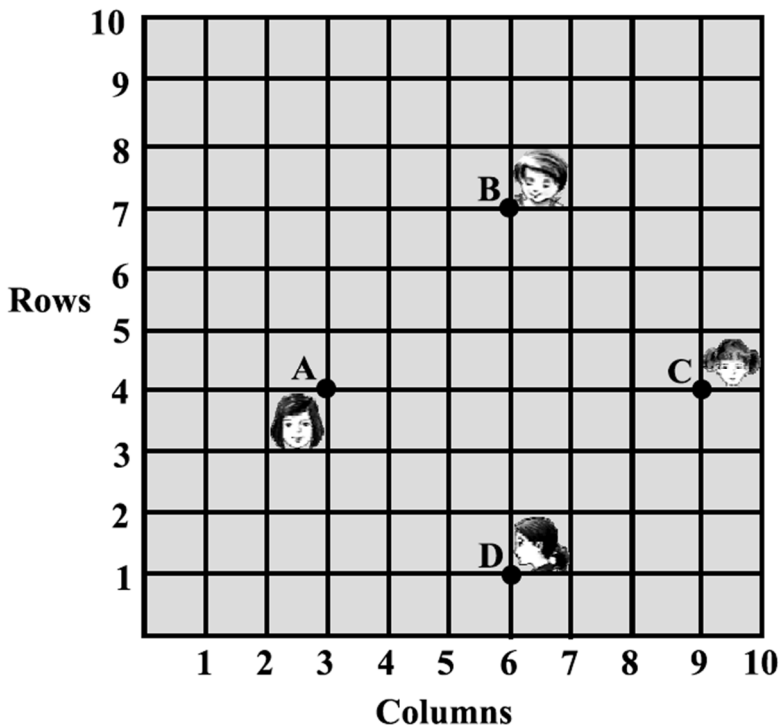
18. If $\sin \theta - \cos \theta = \frac{1}{2}$, then find the value of $\frac{1}{\sin \theta + \cos \theta}$.

SECTION - D (5 MARKS EACH)

19. If $\operatorname{cosec} \theta - \sin \theta = m$ and $\sec \theta - \cos \theta = n$, prove that $(m^2n)^{2/3} + (mn^2)^{2/3} = 1$.
20. Solve for x and y : $\frac{8}{2x-3y} + \frac{21}{2x+3y} = 11$; $\frac{5}{2x-3y} + \frac{7}{2x+3y} = 6$, ($2x-3y \neq 0, 2x+3y \neq 0$)

CASE STUDY-BASED QUESTIONS (Each sub-question carries 1 mark)

21. In a park, 4 friends are seated and talking through walkie-talkie at the points A, B, C and D as shown in below figure. Two students Shweta and Aditi walk into the park playing and after observing the four friends seated at A, B, C and D for a few minutes. They started drawing rows and columns by taking one corner as origin in order to identify the location of all 4 friends.



Based on the above information, answer the following questions: (Attempt any four)

- (i) What are the coordinates of A, B, C and D?
- (ii) Find the distance AB and CD.
- (iii) Find the distance AC and BD.
- (iv) What is distance from A from the origin?
- (v) Name the figure obtained by joining the points ABCD.

22. The department of Computer Science and Technology is conducting an International Seminar. In the seminar, the number of participants in Mathematics, Science and Computer Science are 60, 84 and 108 respectively. The coordinator has made the arrangement such that in each room, the same number of participants are to be seated and all of them being in the same subject. Also, they allotted the separate room for all the official other than participants.



Based on the above information, answer the following questions: (Attempt any four)

- (i) Find the total number of participants.
- (ii) Find the LCM of 60, 84 and 108.
- (iii) Find the HCF of 60, 84 and 108.
- (iv) Find the minimum number of rooms required, if in each room, the same number of participants are to be seated and all of them being in the same subject.
- (v) Based on (iv) conditions, find the minimum number of rooms required for all the participants and officials.

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