SUBJECTIVE MATHEMATICS

Short Answer Type Questions

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Based on Quadratic Eqs., Arithmetic Progression, Coordinate Geometry & Applications Of Trigonometry

Q01. The area of a triangle is 5*sq.units.* Its vertices are $(2, 1)$, $(3,-2)$ and (x, y). If $y - x = 3$, find the third vertex of the triangle.

Q02. Show that the points $(3, 3), (h, 0)$ and $(0, k)$ are collinear if $\frac{1}{h}+\frac{1}{k}=\frac{1}{3}$.

Q03. If $(1, 4)$ be the centroid of a triangle and the coordinates of its any two vertices be $(4,-8)$ and $(-9, 7)$ then, find the area of triangle.

Q04. The points $(1, 1), (-1,-1)$ and $\left(-\sqrt{3}, \sqrt{3}\right)$ form angular points of an equilateral triangle. True or False?

Q05. Given that $\mathrm{A}(-3, 4)$ and $\mathrm{B}(2, 1)$ then, what are the coordinates of a point C on AB produced such that $\mathrm{AC} = 2\mathrm{BC}$?

Q06. P and Q are the points on line joining $\mathrm{A}(-2, 5)$ and $\mathrm{B}(3, 1)$ such that $\mathrm{AP} = \mathrm{PQ} = \mathrm{QB}$. What are the coordinates of mid-point of PQ ?

Q07. Two vertices of a triangle are $(5,-1)$ and $(-2, 3)$. If the orthocentre of this triangle is origin, then find its third vertex.

Q08. Roots of $3x^2 - 7x + 4 = 0$ are irrational. True/ False?

Q09. If the roots of $ax^2 + bx + c = 0$ are equal, then write the value of c.

Q10. If α, β be the roots of $ax^2 + bx + c = 0$, then the value of $\alpha^2 + \beta^2$ is…….

Q11. The quadratic equation whose roots are a, $\frac{1}{a}$ is……

Q12. The value of p so that the quadratic equation $x^2 + 5px + 16 = 0$ has no real roots, is……..

Q13. If $px^2 + 3x + q = 0$ has two roots $x = -1$ and $x = -2$, the value of $q - p$ is…….

Q14. The common root of the equations $x^2 - 3x + 2 = 0$ and $2x^2 - 5x + 2 = 0$ is…….

Q15. Quadratic equation with real coefficients whose one root is $2+\sqrt{3}$, is…….

Q16. The difference of roots of the quadratic equation $x^2 + kx + 12 = 0$ is 1, the positive value of k is ……..

Q17. If one of the roots of a quadratic equation exceeds the other root by 1 and sum of their squares is one then, the roots are…….

Q18. How many natural numbers up to 300 are divisible by 17?

Q19. Sum of first 10 natural numbers is…..

Q20. If 2 x, (x +10) and (3x+2) are in AP then $x =$ ……..

Q21. First negative term of the AP, 81/5, 77/5, 73/5,… is……..

Q22. If $\frac{a^{n+1}+b^{n+1}}{a^n+b^n}$ is the arithmetic mean between a and b, then value of n will be……..

Q23. Sum of first n odd natural numbers is…….

Q24. Sum to 100 terms of $(1-2+3-4+5-6+....)$ is……

Q25. The sum of all the numbers between 1 and 1000, which are divisible by 5 but not by 2, is……

Q26. If $a_{10} - a_5 = 200$ then the common difference is……..

Q27. The shadow of a tree 6m in its height is $2\sqrt{3}m$. The angle of elevation of the sun is…….

Q28. A tower stands vertically on the ground, form a point on the ground, which is 15m away from the foot of the tower, the angle of elevation of the top of the tower is found to be 60°. The height of tower is……

Q29. The angle of elevation of the top of a tower from two points at distances p and q from the base and on the same straight line with it are complimentary. The height of the tower is……..

Q30. Find the angle of elevation of the top of a tower at a point which is as far from the foot of the tower as its height.