01. REAL NUMBERS

Mathematics is incredibly wonderful, but to get to the point where you can see how great it is, you must learn your basics well!

Q01. The smallest prime number is:
(a) 0 (b) 1 (c) 2 (d) 3

Q02. The sum of first five prime numbers is:
(a) 26 (b) 15 (c) 39 (d) 28

Q03. Total prime numbers between 1 and 100 are:
(a) 31 (b) 25 (c) 22 (d) 20

Q04. The unit's digit obtained on simplifying 207×781×39×94 is:
(a) 9 (b) 1 (c) 7 (d) 2

Q05. The number $\sqrt{3}$ is a/an:
(a) integer (b) rational number (c) irrational number (d) None of these

Q06. The HCF and LCM of 6, 72 and 120 is:
(a) 8, 360 (b) 6, 340 (c) 6, 360 (d) None of these

Q07. The total number of even prime numbers is:
(a) 0 (b) 1 (c) 2 (d) None of these

Q08. 22/7 is a:
(a) prime number (b) an integer (c) a rational number (d) an irrational number

Q09. The sum of two numbers is 37 and their product is 342. The numbers are:
(a) 18, 19 (b) 23, 14 (c) 24, 13 (d) 28, 9

Q10. A number is as bigger than 22 as much it is smaller than 72. The number is:
(a) 92 (b) 47 (c) 24 (d) None of these

Q11. If HCF and LCM of two numbers are 4 and 9696, then the product of two numbers is:
(a) 9696 (b) 24242 (c) 38784 (d) 4848

Q12. $5+\sqrt{2}+\sqrt{3}$ is:
(a) a natural number (b) an integer (c) a rational number (d) an irrational number

Q13. If $\left(\frac{9}{7}\right)^3 \times \left(\frac{49}{81}\right)^{2x-6} = \left(\frac{7}{9}\right)^9$ then, the value of x is:
(a) 12 (b) 9 (c) 8 (d) 6

Q14. The number .211 2111 21111 211111… is a:
(a) terminating decimal (b) non-terminating repeating decimal
(c) non-terminating decimal which is non-repeating (d) None of these

Q15. If $m^n = 32$, where m and n are positive integers, then the value of n^{mn} is:
(a) 32 (b) 25 (c) 5^{10} (d) 5^{25}

Q16. Any one of the numbers a, $a+2$ and $a+4$ is a multiple of:
(a) 2 (b) 3 (c) 5 (d) 7

Q17. If p is a prime number and p divides k^2, then p divides:
(a) $2k^2$ (b) k (c) $3k$ (d) None of these

Q18. If the HCF of 85 and 153 is expressible in the form of $85n-153$ then, the value of n is:
(a) 3 (b) 2 (c) 4 (d) 1

Q19. Given that LCM (91, 26) = 182 then, HCF (91, 26) is:
(a) 13 (b) 26 (c) 7 (d) 9

Q20. Out of the four numbers (i) $\left(\sqrt{5}-\frac{1}{\sqrt{5}}\right)^3$ (ii) $2.123\overline{123}$ (iii) $2.123123...$ (iv) $\left(2\sqrt{3}-\sqrt{2}\right)\left(2\sqrt{3}+\sqrt{2}\right)$, the rational number is:
(a) i (b) ii (c) iii (d) iv

Q21. $7\times11\times13+6$ is:

(a) a prime number (b) a composite number (c) an even number (d) None

Q22. If $p^n = (a \times 5)^n$, for p^n to end with the digit zero $a =$ _______ for any natural number *n*:
(a) any natural number (b) an odd number (c) any even number (d) None

Q23. HCF is always:
(a) multiple of LCM (b) factor of LCM (c) divisible by LCM (d) Option *a* and *c* both

Q24. In Euclid's division lemma where $a = bq + r$ and *a, b* are positive integers, which one is correct:
(a) $0 < r \le b$ (b) $0 \le r < b$ (c) $0 < r < b$ (d) $0 \le r \le b$

Q25. If *p* is a positive rational number which is not a perfect square then, $-3\sqrt{p}$ is:
(a) an integer (b) rational number (c) irrational number (d) Option (a) and (c) both

Q26. $2 - \sqrt{5}$ is:
(a) a rational number (b) a natural number (c) equal to zero (d) an irrational number

Q27. The number given below which always ends with the digit 6 for all natural nos. *n* is:
(a) 4^n (b) 2^n (c) 6^n (d) 8^n

Q28. $(\sqrt{2} - \sqrt{5})(\sqrt{5} + \sqrt{2})$ is:
(a) a rational number (b) a natural number (c) equal to zero (d) an irrational number

Q29. Let $x = \frac{7}{2^2 \times 5^3}$ be a rational number. Then *x* has decimal expansion which terminates:
(a) after four places of decimal (b) after three places of decimal
(c) after two places of decimal (d) after five places of decimal

Q30. The decimal expansion of $\frac{63}{72 \times 175}$ is:
(a) terminating (b) non-terminating (c) non-terminating and repeating (d) None of these

Q31. 2.35 is:
(a) an integer (b) a rational number (c) an irrational no. (d) None of these

Q32. Which one is not a natural number:
(a) $\sqrt{25}$ (b) $\sqrt{121}$ (c) $\sqrt{100}$ (d) $\sqrt{7}$

Q33. $(3\sqrt{5} - 7\sqrt{3})^2$ is equal to:
(a) $(2115 - \sqrt{192})$ (b) $(21\sqrt{15} - 192)$ (c) $(192 + 21\sqrt{15})$ (d) $(192 - 42\sqrt{15})$

Q34. Which number is natural?
(a) –8 (b) 2 (c) 0 (d) 1/2

Q35. Zero is:
(a) natural no. (b) whole no. (c) non divisible no. (d) divisible no.

Q36. Which of the following is a rational number having terminating decimal expansion:
(a) 36/100 (b) 41/8 (c)329/400 (d) All these

Q37. Which one of the following statement is true?
(a) Every natural number is a whole number (b) Every integer is a whole number
(c) Every rational number is a whole number (d) None of these

Q38. $6\sqrt{5} \times 2\sqrt{5}$ is equal to:
(a) 70 (b) 50 (c) 60 (d) 55

Q39. LCM of 25, 35 and 105 is:
(a) 555 (b) 565 (c) 575 (d) None of these

02. POLYNOMIALS

A mathematician who is not also a poet will never be a complete mathematician. In fact, pure mathematics is, in its way, the poetry of logical ideas!

Q01. The quadratic polynomials with the sum and the products of its zeroes as 1/4 and –1 respectively, is:
(a) $4x^2 + x + 1$ (b) $4x^2 + x + 4$ (c) $4x^2 + x - 1$ (d) $4x^2 - x - 4$

Q02. If $x^2 + \frac{1}{x^2} = 102$, then the value of $x - \frac{1}{x}$ is:
(a) 8 (b) 10 (c) 12 (d) 13

Q03. If $p(x) = 3x^3 + x^2 + 2x + 5$ is divided by $g(x) = x^2 + 2x + 1$, then the remainder will be:
(a) $8x+10$ (b) $9x+10$ (c) $10x+10$ (d) $11x+10$

Q04. The quadratic polynomial, the sum and product of whose zeroes are –3 and 2 respectively, is:
(a) $x^2 + 3x + 2$ (b) $x^2 - 3x + 2$ (c) $x^2 + 3x - 2$ (d) $-x^2 + 3x + 2$

Q05. The zeroes of quadratic polynomial $t^2 - 15$ are:
(a) $-\sqrt{15}, \sqrt{15}$ (b) $\sqrt{15}, \sqrt{12}$ (c) $\sqrt{15}, -\sqrt{12}$ (d) $\sqrt{15}, -15$

Q06. A quadratic polynomials, the sum and product of whose zeroes are –1/4 and 1/4 respectively, is:
(a) $4x^2 + x + 1$ (b) $x^2 - 3x + 2$ (c) $x^2 + 3x - 2$ (d) None of these

Q07. If $\left(x + \frac{1}{x}\right) = 3$, then $x^2 + \frac{1}{x^2}$ is equal to:
(a) 82/9 (b) 10/3 (c) 7 (d) 11

Q08. If $x^{1/3} + y^{1/3} + z^{1/3} = 0$, then:
(a) $x + y + z = 0$ (b) $x + y + z = 3xyz$ (c) $(x + y + z)^3 = 27xyz$ (d) $x^3 + y^3 + z^3 = 0$

Q09. If $p(x) = 3x^2 - 5x$, then $p(2)$ =_______:
(a) 2 (b) 3 (c) 0 (d) None of these

Q10. The quadratic polynomials whose zeroes are 3/5 and –1/2, is:
(a) $10x^2 - x - 3$ (b) $10x^2 + x - 3$ (c) $10x^2 - x + 3$ (d) None of these

Q11. If α and β are the zeroes of $2x^2 + 5x - 10$, then the value of αβ is:
(a) –5/2 (b) 5 (c) –5 (d) 2/5

Q12. A real number α is a zero of the polynomial $f(x)$ if:
(a) $f(\alpha) > 0$ (b) $f(\alpha) < 0$ (c) $f(\alpha) = 0$ (d) $f(\alpha) \geq 0$

Q13. The zeroes of a polynomial $f(x)$ are the coordinates of the points where the graph of $y = f(x)$ intersects:
(a) X-axis (b) Y-axis (c) Origin (d) None

Q14. If β is a zero of $f(x)$ then, _________ is one of the factors of $f(x)$:
(a) $(x - 2\beta)$ (b) $(x - \beta)$ (c) $(x + \beta)$ (d) $(2x - \beta)$

Q15. If $(y - a)$ is factor of $f(y)$ then, _______ is a zero of $f(y)$:
(a) y (b) $-a$ (c) $2y$ (d) a

Q16. Out of the followings, the incorrect statement for a quadratic polynomial is:
(a) no real zeroes (b) two equal real zeroes
(c) two distinct zeroes (d) three real zeroes

Q17. A cubic polynomial $x = f(y)$ cuts Y-axis at atmost:
(a) one point (b) two points (c) three points (d) four points

Q18. Graph of $ax^2 + bx + c$ intersects X-axis at two distinct points if:
(a) $b^2 - 4ac \leq 0$ (b) $b^2 - 4ac < 0$ (c) $b^2 - 4ac > 0$ (d) $b^2 - 4ac \geq 0$

Q19. Polynomial $f(x) = x^2 + 1$ has ___________________ zeroes:
(a) only one real (b) no real
(c) only two real (d) one real and one non-real

Q20. If P is the sum of zeroes and S is product then, the corresponding quadratic polynomial may be:
(a) $x^2 - Sx + P$ (b) $x^2 - Sx - P$
(c) $x^2 - Px + S$ (d) $x^2 + Sx - P$

Q21. If zeroes of the quadratic polynomial $ax^2 + bx + c$ are reciprocal of each other, then:
(a) $a=c$ (b) $a=b$ (c) $b=c$ (d) $a+c=0$

Q22. If the sum of the zeroes of quadratic polynomial $3x^2 - kx + 6$ is 3, the value of k is:
(a) 3 (b) –3 (c) 6 (d) None

Q23. The other two zeroes of $x^3 - 8x^2 + 19x - 12$ if one of its zero is unity, is:
(a) –3, 4 (b) –3, –4 (c) 3, –4 (d) None

Q24. Quadratic polynomial, the sum and product of whose zeroes are –3 and 2, is:
(a) $x^2 - 3x + 2$ (b) $x^2 + 3x - 2$ (c) $x^2 - 3x + 2$ (d) $x^2 + 3x + 2$

Q25. The third zero of the polynomial $x^3 + 7x^2 - 2x - 14$, if two of its zeroes are $\pm\sqrt{2}$, is:
(a) 7 (b) –7 (c) 14 (d) –14

Q26. If $\sqrt{\frac{5}{3}}$ and $-\sqrt{\frac{5}{3}}$ are two zeroes of $3x^4 + 6x^3 - 2x^2 - 10x - 5$, then its other two zeroes are:
(a) –1, –1 (b) 1, –1 (c) 1, 1 (d) 3,–3

Q27. If $\sqrt{3}$ and $-\sqrt{3}$ are two zeroes of $x^4 - 3x^3 - x^2 + 9x - 6$, then its other two zeroes are:
(a) –1, –2 (b) 1, 2 (c) –1, 2 (d) None

Q28. If $a-b, a$ and $a+b$ are zeroes of the polynomial $x^3 - 3x^2 + x + 1$ then, the value of $a+b$ is:
(a) $1 \pm \sqrt{2}$ (b) $-1 + \sqrt{2}$ (c) $-1 - \sqrt{2}$ (d) $-1 + \sqrt{3}$

Q29. If a real number a is zero of the polynomial $f(x)$, then:
(a) $f(a) = -1$ (b) $f(a) = \pm 1$ (c) $f(a) = 0$ (d) $f(a) = 1$

Q30. If the product of two of the zeroes of polynomial $2x^3 - 9x^2 + 13x - 6$ is 2, the third zero of the polynomial is:
(a) –1 (b) –2 (c) 3/2 (d) –3/2

Q31. If –4 is a zero of the polynomial $x^2 - x - (2 + 2k)$ then, the value of k is:
(a) 3 (b) 9 (c) 6 (d) –9

Q32. If one zero of $(k^2 + 4)x^2 + 13x + 4k$ is reciprocal of the other, then k is:
(a) 2 (b) –2 (c) 1 (d) –1

Q33. If the sum of the zeroes of polynomial $p(x) = 2x^3 - 3kx^2 + 4x - 5$ is 6 then, the value of k is:
(a) 2 (b) 4 (c) –2 (d) –4

Q34. If one of the zero of polynomial $p(x) = 5x^2 + 13x - m$ is reciprocal of the other then, value of m is:
(a) 2 (b) 4 (c) –2 (d) None of these

Q35. For the polynomial $x^4 - x^3 + 2x^2 - 5x + 8$, the maximum number of zeroes it has are:
(a) 2 (b) 4 (c) 3 (d) 0

Q36. For the polynomial $2x^2 - 5x + 4$, the maximum number of zeroes (*real or imaginary*) it has are:
(a) 2 (b) 4 (c) 3 (d) None of these

Q37. What is the difference between the values of the polynomial $7x$-$3x^2$+7 at x = 1 and x =2?
(a) –2 (b) +2 (c) 3 (d) None of these

Q38. What is the remainder when the polynomial $3x^4$–$4x^3$–$3x$ –1 is divided by x–1?
(a) 5 (b) –5 (c) 8 (d) 6

Q39. The value of k, if x–1 is a factor of $4x^3 + 3x^2 - 4x + k$ is:
(a) –3 (b) 3 (c) 2 (d) 5

Q40. The product of (3–2x) (3+2x) is:
(a) 8– $2x^2$ (b) 9 – $4x^2$ (c) 9–$2x^2$ (d) 9–$16x^2$

Q41. The number of zeroes which a polynomial of degree n can have is:
(a) at most n (b) exactly n (c) n+1 (d) Can't say

Q42. $\left(7x - \frac{1}{9y}\right)\left(7x + \frac{1}{9y}\right)$ is equal to:

(a) $\left(39x^2 - \frac{1}{81y^2}\right)$ (b) $\left(49x^2 - \frac{1}{81y^2}\right)$ (c) $\left(49x^2 - \frac{1}{18y^2}\right)$ (d) None of these

Q43. The term that should be added to $4x^2 + 12xy$ to form a perfect square is:
(a) $9y$ (b) $9xy$ (c) $9y^2$ (d) $4y^2$

Q44. The sum of the roots of the equation $ax^2+bx+c=0$:
(a) c/a (b) –b/a (c) b/c (d) –c/a

Q45. If the roots of the equation $px^2 + qx + 3 = 0$ are reciprocal to each other, then:
(a) $q = 3$ (b) $p = 3$ (c) $p - q = 0$ (d) $p + q = 0$

Q46. If $x^4 + \frac{1}{x^4} = 322$, then $x - \frac{1}{x}$ is equal to:
(a) 4 (b) 6 (c) 5 (d) 2

Q47. If $(x-2)$ is a factor of $2x^3-6x^2+5x+k$, then the value of k is:
(a) –2 (b) 10 (c) 15 (d) None of these

Q48. If α, β, λ be the zero of the polynomials $p(x)$ such that $\alpha+\beta+\lambda = 3$, $\alpha\beta+\beta\lambda+\lambda\alpha = -10$ and $\alpha\beta\lambda = -24$ then, $p(x)$ is:
(a) $x^3+3x^2-10x+24$ (b) $x^3+3x^2+10x-24$ (c) $x^3-3x^2-10x+24$ (d) None of these

Q49. If $t^2-4t+4 = 0$, then the value of $\left(t^3 + \frac{1}{t^3}\right)$ is:
(a) 8/56 (b) 8/65 (c) 56/8 (d) None of these

Q50. The factors of x^4+4 are:
(a) $(x^2+2)(x^2-2)$ (b) $(x^2+2x+2)(x^2-2x+2)$ (c) $(x+2)(x-2)$ (d) Not possible

Q51. If $(x+2)$ is a factor of $p(x) = 2x^2+3x+k$, then the value of k is:
(a) 2 (b) –2 (c) –14 (d) 14

Q52. The remaining zeroes of $3x^4 - 6x^3 - 2x^2 - 10x - 5$, if two of its zeroes are given as $\pm\sqrt{5/3}$, are:
(a) –2, –1 (b) 2, –1 (c) –1, +1 (d) None of these

Q53. If $(x-4)$ is the HCF of (x^2-x-12) and (x^2-mx-8), then the value of m is:
(a) 0 (b) 1 (c) 2 (d) 6

Q54. The LCM of (x^2+x-6) and $4(4-x^2)$ is:
(a) $4(x+3)(x-2)(x+2)$ (b) $-4(x+3)(x-2)(x+2)$
(c) $-4(x-3)(x-2)(x-2)$ (d) $4(x-3)(x+2)(x+2)$

Q55. If $x - \frac{1}{x} = \frac{1}{2}$, then the value of $4\left(x^2 + \frac{1}{x^2}\right)$ is:
(a) 2 (b) 5 (c) 8 (d) 9

Q56. If $x^{100}+2x^{99}+k$, is divisible by $(x+1)$, then the value of k is:
(a) 1 (b) 2 (c) –3 (d) –2

Q57. If $x^4 + \frac{1}{x^4} = 4$ then $x - \frac{1}{x}$ is equal to:
(a) –1, 2 (b) –1, +1 (c) 8, –1 (d) None of these

Q58. The value of $x^2 + \frac{1}{x^2}$, when $x + \frac{1}{x} = 10$:
(a) 96 (b) 97 (c) 98 (d) 102

Q59. A quadratic polynomial $f(x)$, is such that:

$$f(x) > 0, \text{ for } -3 < x < 2$$
$$\leq 0, \text{ otherwise}$$

Which of the following can be the polynomial $f(x)$?
(a) $-x^2 - x - 6$ (b) $-x^2 + x + 6$ (c) $-x^2 + x - 6$ (d) $-x^2 - x + 6$

03. LINEAR EQUATIONS IN TWO VARIABLES

One cannot escape the feeling that these mathematical formulas have an independent existence and an intelligence of their own, that they are wiser than we are, wiser even than their discoverers...

Q01. The solutions of the equation $2x-y-5=0$ are:

(a) $x=2, y=-1$ (b) $x=2, y=1$ (c) $x=1, y=-1$ (d) $x=-2, y=1$

Q02. The sum of digit of a two digit number is 9. Also, 9 times this number is twice the number obtained by reversing the order of the digit. The number is:

(a) 20 (b) 16 (c) 18 (d) None of these

Q03. The system of equations $kx-y=2$ and $6x-2y=3$ has a unique solution when:

(a) $k=0$ (b) $k \neq 0$ (c) $k=3$ (d) $k \neq 3$

Q04. A boat can row 1km with stream in 10minutes and 1km against the stream in 20minutes. The speed of the boat in still water is:

(a) 1.5km/hr (b) 3km/hr (c) 3.4km/hr (d) 4.5km/hr

Q05. A boat goes 24km upstream and 28km downstream in 6hours. It goes 30km upstream and 21km downstream in 6hours and 30minutes. The speed of the boat in still water is:

(a) 4km/hr (b) 6km/hr (c) 10km/hr (d) 14km/hr

Q06. Point (4, 3) lies on the line:

(a) $3x+7y=27$ (b) $7x+2y=47$ (c) $3x+4y=24$ (d) $5x-4y=1$

Q07. The speed of train 150m long is 50km/hr. The time it will take to cross a platform 600m long is:

(a) 50sec (b) 54sec (c) 60sec (d) None of these

Q08. The graph of an equation $y=-3$ is a line which will be:

(a) parallel to x-axis (b) parallel to y-axis (c) passing through origin (d) on x-axis

Q09. The value of k for which $kx+2y=5$ and $3x+y=1$ have unique solution, is:

(a) $k=-1$ (b) $k \neq 6$ (c) $k=6$ (d) $k=2$

Q10. The graph of the equation $x-y=0$ is:

(a) parallel to x-axis (b) parallel to y-axis

(c) passing through origin (d) None of these

Q11. Five years hence, father's age will be three times the age of his daughter. Five years ago, father was seven times as old as his daughter. Their present ages are:

(a) 20 years, 10 years (b) 40 years, 20 years (c) 40 years,10 years (d) 30 years, 10 years

Q12. In a two digit number, the unit's digit is twice the ten's digit. If 27 is added to the number, the digits interchange their places. The number is:

(a) 22 (b) 46 (c) 36 (d) 63

Q13. The pair of equations $3x+4y=18,\ 4x+\frac{16}{3}y=24$ has:

A. no solution B. unique solution

C. infinitely many solution D. can't say

Q14. The pair of equations $3x+2y=5,\ 2x-3y=7$ has:

A. no solution B. one solution C. many solutions D. two solutions

Q15. If the pair of equation $2x+3y=7,\ kx+\frac{9}{2}y=12$ have no solution, then value of k is:

A. 2/3 B. 3/2 C. 3 D. –3

Q16. The equations $x-y=0.9$ and $\frac{11}{x+y}=2$ have the solution:

A. $x=5, y=1$ B. $x=2.3$ & $y=3.2$ C. $x=3.2$ & $y=2.3$ D. $x=3, y=2$

Q17. If $bx+ay=a^2+b^2$ and $ax-by=0$ then, the value of $x-y$ is:

A. $b-a$ B. $a-b$ C. a^2-b^2 D. b^2+a^2

Q18. If $2x+3y=0,\ 4x-3y=0$ then, $x+y$ equals:

A. 0 B. –1 C. 1 D. 2

Q19. If $\sqrt{a}x-\sqrt{b}y=b-a$ and $\sqrt{b}x-\sqrt{a}y=0$ then, value of $x-y$ is:

A. $a+b$ B. $a-b$ C. $\sqrt{a}-\sqrt{b}$ D. $\sqrt{b}-\sqrt{a}$

Q20. If $\frac{2}{x}+\frac{3}{y}=13$ and $\frac{5}{x}-\frac{4}{y}=-2$ then, $x+y$ equals:

A. 1/6 B. –1/6 C. 5/6 D. –5/6

Q21. If $31x+43y=117$ and $43x+31y=105$ then, the value of $x+y$ is:

A. –3 B. 1/3 C. –1/3 D. 3

Q22. If $19x-17y=55$ and $17x-19y=53$ then, the value of $x-y$ is:

A. –3 B. 1/3 C. 3 D. 5

Q23. If $\frac{x}{2}+y=0.8$ and $\frac{7}{x+\frac{y}{2}}=10$ then, the value of $x+y$ is:

A. 1 B. 0.6 C. –0.8 D. 0.5

Q24. If $(6,k)$ is a solution of the equation $3x+y=22$ then, the value of k is:

A. –4 B. 4 C. 3 D. –3

Q25. If $3x-5y=1, \frac{2x}{x-y}=4$ then, the value of $x+y$ is:

A. 3 B. –3 C. 1/3 D. –1/3

Q26. If the pair of equation $2x+3y=5$ and $10x+15y=2k$ represent two coincident lines then, the value of k is:

A. –25/2 B. –5 C. 25/2 D. –5/2

Q27. Rs.4900 was divided among a group of 150 children. If each girl gets Rs.50 and each boy gets Rs.25 then, the number of boys in the group is:

A. 100 B. 102 C. 104 D. 105

Q28. Every linear equation in two variables has ___________ solution(s).

A. no B. one C. two D. infinitely many

Q29. $\frac{a_1}{a_2}=\frac{b_1}{b_2}=\frac{c_1}{c_2}$ is the condition for:

A. intersecting lines B. parallel lines C. coincident lines D. none of these

Q30. For a pair of equation to be consistent and dependent, the pair must have:

A. no solution B. unique solution
C. infinitely many solution D. none of these

Q31. Graph of every linear equation in two variables represents a _________.
A. point B. straight line C. curve D. triangle

Q32. Each point on the graph of pair of two lines is a common solution of the lines in case of:
A. infinitely many solution B. only one solution
C. no solution D. none of these

Q33. One of the common solution of $ax+by=c$ and *y-axis* is:
A. $(0, c/b)$ B. $(0, b/c)$ C. $(c/b, 0)$ D. $(0, -c/b)$

Q34. If the value of x in the equation $2x-8y=12$ is 2 then, the corresponding value of y will be:
A. –1 B. 1 C. 0 D. 2

Q35. The pair of linear equations is said to be inconsistent if they have:
A. only one solution B. no solution
C. infinitely many solution D. both *a* and *c*

Q36. On representing $x=a$ and $y=b$ graphically, we get:
A. parallel lines B. coincident lines
C. intersecting lines at (a, b) D. intersecting lines at (b, a)

Q37. How many real solutions of $2x+3y=5$ are possible:
A. no B. one C. two D. infinitely many

Q38. The value of k for which the system of equation $3x+2y=-5,\ x-ky=2$ has a unique solution is:
A. $k=2/3$ B. $k\neq 2/3$ C. $k=-2/3$ D. $k\neq -2/3$

Q39. If the lines represented by the pair of linear equations $2x+5y=3,\ 2(k+2)y+(k+1)x=2k$ are coincident then, the value of k is:
A. –3 B. 3 C. 1 D. –2

Q40. The coordinates of the point where *x-axis* and the line $\frac{x}{2}+\frac{y}{3}=1$ intersect, are:
A. (0,3) B. (3,2) C. (2,0) D. (0,2)

Q41. Graphically $x-2=0$ represents a line:
A. parallel to *x-axis* at a distance 2 units from *x-axis*
B. parallel to *y-axis* at a distance 2 units from *y-axis*
C. parallel to *x-axis* at a distance 2 units from *y-axis*
D. parallel to *y-axis* at a distance 2 units from *x-axis*

Q42. If $ax+by=c$ and $lx+my=n$ has unique solution then the relation between the coefficients will be of the form:
A. $am\neq lb$ B. $am=lb$ C. $ab=lm$ D. $ab\neq lm$

Q43. The value of a for which $(3, a)$ lies on $2x-3y=5$:
A. 1/3 B. 3 C. –1/3 D. None of these

Q44. If $2^{x-y}=8$ and $2^{x+y}=64$, then value of x and y will be:
(a) 9/2, 3/2 (b) –9/2, 3/2 (c) 9/2, –3/2 (d) 3, 2

Q45. On solving $x-y=3$, $x+y=5$, we have value of y as:
(a) 1 (b) 2 (c) 3 (d) 4

Q46. The solution of the equations $7x-2y=3$ & $11x-1.5y=8$ is:
(a) $x=2, y=1$ (b) $x=1, y=2$ (c) $x=-1, y=2$ (d) None of these

Q47. If $3^{x-y}=9$ and $3^{x+y}=81$, then value of y is:

(a) 1 (b) 2 (c) 3 (d) None of these

Q48. If 1 is added in numerator and denominator then a fraction changes to 4. If 1 is subtracted from the numerator and denominator, fraction changes to 7. Numerator of the fraction is:

(a) 2 (b) 3 (c) 7 (d) 15

Q49. If system of equations $a_1x+b_1y+c_1=0$ and $a_2x+b_2y+c_2=0$ has infinitely many solutions, then:

(a) $\frac{a_1}{a_2} \neq \frac{b_1}{b_2}$ (b) $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$ (c) $\frac{a_1}{a_2} \neq \frac{b_1}{b_2} = \frac{c_1}{c_2}$ (d) None of these

Q50. The value of y obtained on solving the equations $2x + y = 2x - y = \sqrt{8}$ is:

(a) 0 (b) 1/4 (b) 1/2 (d) 3/4

Q51. The value of k for which the system of equation $2x+3y=5$ & $4x+ky=10$ has an infinite number of solutions, is:

(a) 1 (b) 3 (c) 6 (d) 0

Q52. Half the perimeter of a rectangular garden, whose length is 4m more than its width is 36m. The dimensions of the garden are:

(a) l=20m; b=16m (b) l=16m; b=20m (c) l=24m; b =20m (d) l=30m; b=16m

Q53. A system of two simultaneous linear equations in two variables is inconsistent, if their graphs:

(a) are parallel (b) are coincident (c) intersect at one point (d) None of these

Q54. Ritu can row downstream 20km in 2hours, and upstream 4km in 2hours. Her speed of rowing in still water and the speed of the current respectively are:

(a) 4km/h, 4km/h (b) 6km/h, 4km/h (c) 6km/h, 6km/h (d) 4km/h, 6 km/h

Q55. A boat is rowed downstream at 15.5km/h and upstream at 8.5km/h. The speed of the stream is:

(a) 3.5km/h (b) 5.75km/h (c) 6.5km/h (d) 7km/h

Q56. On solving $3^{x+y}=81$ and $81^{x-y}=3$, we observe that:

(a) No solution (b) $x = 2\frac{1}{2},\ y = 1\frac{1}{2}$

(c) x =2, y = 2 (d) $x = 2\frac{1}{8},\ y = 1\frac{7}{8}$

Q57. The sum of two digits of a two digits number is 12. If the digits are reversed, then the number so formed exceeds the original number by 18. The original number is:

(a) 64 (b) 56 (c) 79 (d) 57

Q58. If $\frac{6}{x}+\frac{12}{y}=7$ and $\frac{2}{x}+\frac{3}{y}=2$ then, the solution is:

(a) 6, 12 (b) 2, 4 (c) 2, 3 (d) None of these

04. TRIGONOMETRIC RATIOS

Black holes result from God dividing the universe by zero.

Q01. If $x = r\sin\theta$ and $y = r\cos\theta$ then, the value of $x^2 + y^2$ is:
(a) r (b) r^2 (c) $1/r$ (d) 1

Q02. The value of $\text{cosec}70^\circ - \sec 20^\circ$ is:
(a) 0 (b) 1 (c) 90° (d) 50°

Q03. If $3\sec\theta - 5 = 0$ then, $\cot\theta$ is equal to:
(a) 5/3 (b) 4/5 (c) 3/4 (d) 3/5

Q04. If $\theta = 45^\circ$ then, $\sec\theta\cot\theta - \text{cosec}\theta\tan\theta$ is:
(a) 0 (b) 1 (c) $2\sqrt{2}$ (d) $\sqrt{2}$

Q05. If $\sin(90^\circ - \theta)\cos\theta = 1$ and, θ is an acute angle then θ is:
(a) 90° (b) 60° (c) 30° (d) None of these

Q06. Triangle TRY is a right angled isosceles triangle then, cos$T$+ cos$R$+ cosY is:
(a) $\sqrt{2}$ (b) $2\sqrt{2}$ (c) $1+2\sqrt{2}$ (d) $1+[1/\sqrt{2}]$

Q07. If triangles ABC and PRT are similar such that $\angle C = \angle R = 90^\circ$ and $\dfrac{AC}{AB} = \dfrac{3}{5}$ then, sin$T$ is:
(a) 3/5 (b) 5/3 (c) 4/5 (d) 5/4

Q08. If $k + 7\sec^2 62^\circ - 7\cot^2 28^\circ = 7\sec 0^\circ$ then, the value of k is:
(a) 1 (b) 0 (c) 7 (d) 1/7

Q09. The value of $\cot\theta - \sin(90^\circ - \theta)\cos(90^\circ - \theta)$ is:
(a) $\cot\theta$ (b) $\cos^2\theta$ (c) $\cot^2\theta$ (d) $\cot\theta\cos^2\theta$

Q10. $\dfrac{\sin\theta}{\sqrt{1-\sin^2\theta}}$ can also be written as:
(a) $\cot\theta$ (b) $\sqrt{\sin\theta}$ (c) $\dfrac{\sin\theta}{\sqrt{\cos\theta}}$ (d) $\tan\theta$

Q11. If $\dfrac{\sin^2 20^\circ + \sin^2 70^\circ}{2(\cos^2 69^\circ + \cos^2 21^\circ)} = \dfrac{\sec 60^\circ}{k}$ then, the value of k is:
(a) 1 (b) 2 (c) 3 (d) 4

Q12. $1+\tan^2\theta$ equals:
(a) $\sec\theta$ (b) $\sec^2\theta$ (c) $\sec 2\theta$ (d) $\cot^2\theta$

Q13. If $\text{cosec}\theta = 13/12$, then
(a) $\tan\theta = 12/5$ (b) $\tan\theta = -5/12$ (c) $\tan\theta = 12/25$ (d) $\tan\theta = \pm 12/25$

Q14. $\cot\theta + \tan\theta$ equals:
(a) $\text{cosec}\theta \sec\theta$ (b) $\sin\theta \sec\theta$ (c) $\cos\theta \tan\theta$ (d) $\sin^2\theta$

Q15. $\cos 1^\circ.\cos 2^\circ.\cos 3^\circ \ldots \cos 180^\circ$ =_____?
(a) 1 (b) –1 (c) 0 (d) None of these

Q16. If $\sin(A-B)=\frac{1}{2}$ and $\cos(A+B)=\frac{1}{2}$ then, A and B will be:

(a) 15°, 45° (b) 45°, 15° (c) 45°, 45° (d) 30°, 60°

Q17. If $\sin\theta + \sin^2\theta = 1$, then the value of $\cos^2\theta + \cos^4\theta$ will be:

(a) 1 (b) $2\sin^2\theta$ (c) $1+2\sin^2\theta$ (d) Can't be determined

Q18. If $\sin A + \cos A = \sqrt{2}\cos(90° - A)$, then $\cot A$ is equal to:

(a) $1-\sqrt{2}$ (b) $\sqrt{2}+1$ (c) $\sqrt{2}-1$ (d) $2-\sqrt{2}$

Q19. If $\sin(A-B)=0.5$, $\cos(A+B)=0.5$; $0° \angle A+\angle B \le 90°$, $\angle A > \angle B$ then, values of $\angle A$ and $\angle B$ are:

(a) A=45° and B = 15° (b) A=55° and B=25° (c) A=35° and B =25° (d) None

Q20. An isosceles triangle ABC in which AB=AC and Angle B =70 then angle A is:

(a) 30 (b) 40 (c) 70 (d) 140

Q21. If sin3A= cos(A–26°), where 3A is an acute angle, then the value of A is:

(a) A=29° (b) A=15° (c) A=30° (d) None of these

Q22. $\frac{(1+\tan^2 A)}{(1+\cot^2 A)} =$ __________?

(a) $\sec^2 A$ (b) –1 (c) $\cot^2 A$ (d) $\tan^2 A$

Q23. $\frac{\cos 60° + \sin 60°}{\cos 60° - \sin 60°} =$ ....:

(a) $-\sqrt{3}+2$ (b) $-2-\sqrt{3}$ (c) $\sqrt{3}-2$ (d) None of these

Q24. The value of tan 5° tan 10° tan 15° tan 20° tan 70° tan 75° tan 80° tan 85° is:

(a) 0 (b) 1 (c) 2 (d) None of these

Q25. If sin A =12/13, then the value of $\frac{13\sin A + 5\sec A}{5\tan A + 12\operatorname{cosec} A}$ will be:

(a) 9 (b) 8 (c) 4 (d) None of these

Q26. The value of tan 30° sin 30° cot 60° cosec 30° will be:

(a) 1 (b) $\frac{1}{3}$ (c) $\frac{1}{\sqrt{3}}$ (d) $\sqrt{3}$

Q27. If θ = 45°, then the value of $\cos^2\theta - \sin^2\theta$ will be:

(a) 0 (b) –1/2 (c)1/2 (d) None of these

Q28. If sinθ = cosθ, then the value of θ will be:

(a) 60° (b) 30° (c) 45° (d) None of these

Q29. If θ is an acute angle and 7+4 sinθ = 9, then the value of θ is:

(a) 90° (b) 30° (c) 45° (d) 60°

Q30. If θ increases from 0° to 90°, sinθ changes according to:

(a) from –∞ to 0 (b) from 0 to 1 (c) from –∞ to 1 (d) None of these

Q31. If sin2A = cos3A, then correct statement is:

(a) A=110° (b) A=30° (c) A=20° (d) A=18°

Q32. If α+β =90° and α =2β, then $\cos^2\alpha+\sin^2\beta$ is equal to:

(a) 1 (b) 1/2 (c) 0 (d) 2

Q33. If A + B =45°, the value of (cosA cosB – sinA sinB) is:

(a) $\sqrt{3}/2$ (b) 0 (c) $1/\sqrt{2}$ (d) None of these

Q34. The value of θ, for $\sin 2\theta = 1,\ 0^\circ < \theta < 90^\circ$ is:

A. 60° B. 55° C. 45° D. 135°

Q35. Value of $\sec^2 26^\circ - \cot^2 64^\circ$ is:

A. 0 B. 1 C. –1 D. 2

Q36. The value of $\tan 1^\circ \tan 2^\circ \tan 3^\circ ..... \tan 89^\circ$ is:

A. 0 B. 1 C. –1 D. 90

Q37. $\sqrt{1+\tan^2\theta}$ is equal to:

A. $\cot\theta$ B. $\cos\theta$ C. $\text{cosec}\,\theta$ D. $\sec\theta$

Q38. If $\alpha+\beta = 90^\circ,\ \cot\beta = 3/4$ then, $\tan\alpha$ is equal to:

A. 3/4 B. 4/3 C. 1/4 D. 1/3

Q39. Maximum value of $\dfrac{1}{\text{cosec}\,\theta},\ 0^\circ < \theta \le 90^\circ$ is:

A. –1 B. 2 C. 1 D. Can't be determined

Q40. If $\cos\theta = 1/2,\ \sin\beta = 1/2$ then value of $\theta+\beta$:

A. 30° B. 60° C. 90° D. 120°

Q41. If $\sin(A+B) = 1 = \cos(A-B)$ then:

A. $A = B = 90^\circ$ B. $A = B = 0^\circ$ C. $A = B = 45^\circ$ D. $A = 2B$

Q42. The maximum value of $(\sin\theta + \cos\theta)$ is:

(a) 1 (b) $\sqrt{2}$ (c) 2 (d) $2\sqrt{2}$

Q43. If sec4A= cosec (A –20°), the value of A:

(a) ∠A = 25° (b) ∠A = 15° (c) ∠A = 22° (d) ∠A = 35°

Q44. $9\sec^2 A - 9\tan^2 A$ = ______?

(a) 1 (b) 9 (c) 8 (d) 0

Q45. $\dfrac{1-\tan^2 45^\circ}{1+\tan^2 45^\circ}$ = ___?

(a) tan 90° (b) 1 (c) sin 45° (d) 0

Q46. $\cos 0^\circ$ = _____?

(a) 0 (b) 1 (c) not defined (d) None of these

Q47. $\tan x + \sin x = m$ and $\tan x - \sin x = n$, then $(m^2 - n^2)$ is equal to:

(a) $4\sqrt{mn}$ (b) $\sqrt{mn}$ (c) $2\sqrt{mn}$ (d) None of these

Q48. If $x = r \sin A \cos C$ and $y = r \sin A \sin C$ and $z = r \cos A$, then the value of $x^2 + y^2 + z^2$ is:

(a) $\dfrac{1}{r^2}$ (b) r^2 (c) $\dfrac{r^2}{2}$ (d) $\dfrac{r}{2}$

05. STATISTICS

Mathematics may not teach us how to deal with the complexity of life.
But it surely gives us a hope that every problem has solution!

Q01. Mean of first 10 natural numbers is:
(a) 5 (b) 6 (c) 5.5 (d) 6.5

Q02. If mean of 4, 6, 8, 10, x, 14, 16 is 10 then, the value of x is:
(a) 11 (b) 12 (c) 13 (d) 9

Q03. The mean of x, $x+1$, $x+2$, $x+3$, $x+4$, $x+5$ and $x+6$ is:
(a) x (b) $x+4$ (c) 3 (d) $x+3$

Q04. The median of 2, 3, 2, 5, 6, 9, 10, 12, 16, 18 and 20 is:
(a) 9 (b) 10 (c) 20 (d) 9.5

Q05. The median of 2, 3, 6, 0, 1, 4, 8, 2, 5 is:
(a) 4 (b) 1 (c) 3 (d) 2

Q06. Mode of 1, 0, 2, 2, 3, 1, 4, 5, 1, 0 is:
(a) 5 (b) 0 (c) 2 (d) 1

Q07. If the mode of 2, 3, 5, 4, 2, 6, 3, 5, 5, 2 and x is 2 then, the value of x is:
(a) 4 (b) 3 (c) 2 (d) 5

Q08. The modal class of the following distribution is:

Class interval	10–15	15–20	20–25	25–30	30–35
Frequency	4	7	12	8	2

(a) 30–35 (b) 20–25 (c) 25–30 (d) 15–20

Q09. A teacher asks one of his student to find the average marks obtained by all the class students in Mathematics, the student will have to find:
(a) Mean (b) Mode (c) Median (d) Sum

Q10. The mean of 11 observations is 50. If the mean of first six observations is 49 and that of the last six observations is 52, then the sixth observation is:
(a) 56 (b) 55 (c) 54 (d) None of these

Q11. Mean of x, 3, 4 and 5 is 3 then, the value of x will be:
(a) 4 (b) 6 (c) 10 (d) None of these

Q12. Mean of 6, 4, p, 7, 10 is 8, then the value of p is:
(a) 13 (b) 14 (c) 19 (d) 20

Q13. The correct empirical relationship is:
(a) Median + A.M. = 2Mode (b) Median – A.M. = Mode
(c) 2(A.M.) – 2(Median) = Mode (d) 3(Median) – 2(A.M.) = Mode

Q14. Consider the following distribution of data:

Class interval	Frequency
35-45	8
45-55	12
55-65	20
65-70	10

The median of this distribution is:

(a) 56.5 (b) 57.5 (c) 58.7 (d) None of these

Q15. The median of 15, 17, 19, 14, 12 will be:

(a) 15 (b) 17 (c) 14 (d) 13

Q16. What is the class size of 40 – 60?

(a) 40 (b) 50 (c) 60 (d) 100

Q17. There are 45 students in a class out of which 15 are girls. The average weight of 15 girls is 45kg and that of 30 boys is 52kg. The mean weight of entire class is:

(a) 46.67kg (b) 47.67kg (c) 48.67kg (d) 49.67kg

Q18. Measure of central tendency is represented by the abscissa of the point where the *'less than ogive'* and *'more than ogive'* intersects is:

(a) Mean (b) Mode (c) Median (d) None of these

Q19. The mean of 20 numbers is 17. If 3 is added to each number, then the new mean is:

(a) 20 (b) 21 (c) 24 (d) None of these

Q20. The mean of 5 numbers is 18. If a particular number is excluded then their mean becomes 16. The number excluded is:

(a) 23 (b) 24 (c) 25 (d) 26

Q21. The mean of first 5 prime numbers is:

(a) 5.5 (b) 5.6 (c) 5.7 (d) 5

Q22. The sum of deviations of the values 3, 4, 6, 8, 14 from their mean is:

(a) 0 (b) 1 (c) 2 (d) 3

Q23. If median= 15 and mean= 16, then the mode is:

(a) 10 (b) 11 (c) 12 (d) 13

06. SIMILAR TRIANGLES

In most sciences one generation tears down what another has built and what one has established another undoes. In mathematics alone each generations adds a new story to the old structure.

Q01. Given that $\Delta ABC \sim \Delta DEF$. If DE= 2AB and BC= 3cm then, EF is equal to ___________.
(a) 12cm (b) 2cm (c) 1.5cm (d) 6cm

Q02. The straight line distance between A and B is (see the Fig.1):

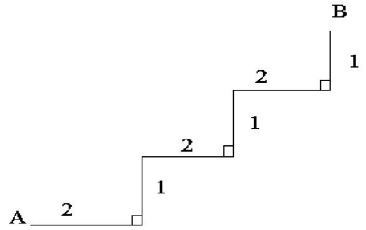

Fig.1

(a) $5\sqrt{3}$ (b) 5 (c) $3\sqrt{5}$ (d) $5\sqrt{2}$

Q03. In a triangle ABC, $\angle A = 25^\circ$, $\angle B = 35^\circ$ and AB=16units. In triangle PQR, $\angle P = 35^\circ$, $\angle Q = 120^\circ$ and PR=4units. Which of the following is true?
(a) ar(ΔABC)= 2ar(ΔPQR) (b) ar(ΔABC)= 4ar(ΔPQR)
(c) ar(ΔABC)= 8ar(ΔPQR) (d) ar(ΔABC)= 16ar(ΔPQR)

Q04. The altitude of an equilateral triangle, having the length of its side as 12cm, is:
(a) $6\sqrt{2}$ cm (b) 6cm (c) 8.5cm (d) $6\sqrt{3}$ cm

Q05. The areas of two similar triangles are 49cm^2 and 64cm^2 respectively. The ratio of their corresponding sides is
(a) 49:64 (b) 7:8 (c) 64:49 (d) None of these

Q06. If ΔABC is similar to ΔDEF such that BC =3cm, EF=4cm and area of ΔABC=54cm^2. The area of ΔDEF is:
(a) 106cm^2 (b) 96cm^2 (c) 120cm^2 (d) 132cm^2

Q07. All the equilateral triangles are ________________.
(a) Similar (b) Congruent (c) Both (a) and (b) (d) None

Q08. A triangle PQR is similar to another triangle ABC such that ar(PQR)=4ar(ABC). The ratio of their perimeters is given as:
(a) 2:1 (b) 1:2 (c) 4:1 (d) None of these

Q09. In a right triangle ABC right angled at C, AC=BC. Then AB^2= ___ $\times$ AC^2.
(a) 1 (b) 2 (c) 4 (d) None of these

Q10. If the three sides of a triangle are a, $\sqrt{3}a$, $\sqrt{2}a$ then the measure of the angle opposite to the longest side is:
(a) 60° (b) 90° (c) 45° (d) 30°

Q11. QA and PB are perpendicular on AB, if AO = 10cm, BO=6cm and PB=9cm, then measure of AQ (see the Fig.2):

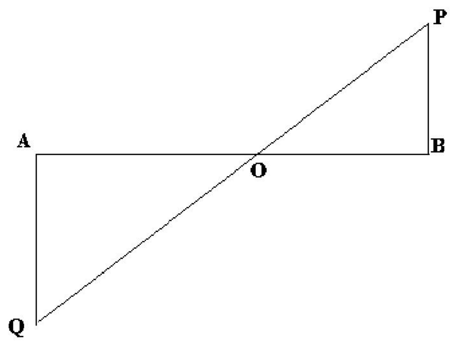

Fig.2

(a) 15cm (b) 25cm (c) 10cm (d) None of these

Q12. In right triangles ABD and BDC (see the figure given in Fig.3), AB = x and CD=y, then PQ is:

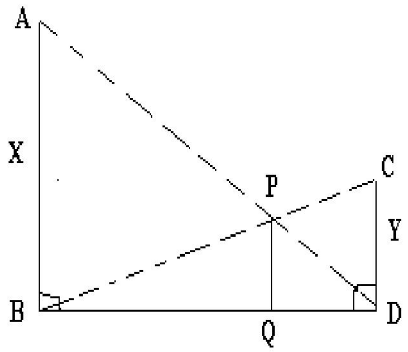

Fig.3

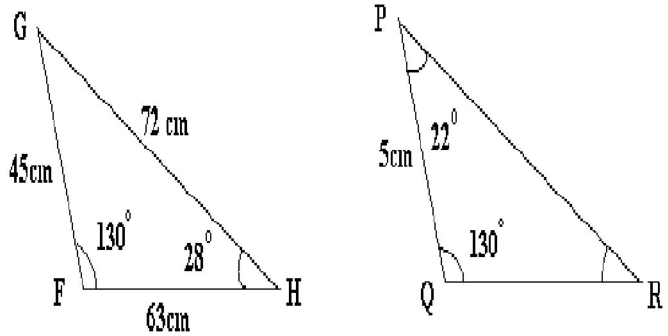

Fig.4

(a) $xy/(x+y)$ (b) $(x-y)/xy$ (c) $(x+y)/xy$ (d) None of these

Q13. In the figure (see the Fig.4) FGH and PQR are two triangles. If the measurements are as shown in the figure, then PR is equal to:

(a) 16cm (b) 12cm (c) 8cm (d) 4cm

Q14. If $\Delta ABC \sim \Delta PQR$, ar(PQR)=100cm^2 and AB/PQ= 1/2 then, ar(ABC) is:

(a) 50cm^2 (b) 25cm^2 (c) 4cm^2 (d) None of these

Q15. The areas of two similar triangles are 144cm^2 and 81cm^2. If one median of the first triangle is 16cm, length of corresponding median of the second triangle is:

(a) 9cm (b) 27cm (c) 12cm (d) 16cm

Q16. The ratio of the areas of two similar triangles is equal to the:

(a) ratio of their corresponding sides (b) ratio of their corresponding altitudes

(c) ratio of the squares of their perimeters (d) ratio of the squares of their corresponding sides

Answers Of Objective Mathematicia

Chapter 01

Q01. c	Q02. d	Q03. b	Q04. d	Q05. c	Q06. c	Q07. b
Q08. c	Q09. a	Q10. b	Q11. c	Q12. d	Q13. d	Q14. c
Q15. c	Q16. b	Q17. b	Q18. b	Q19. a	Q20. b	Q21. b
Q22. c	Q23. b	Q24. b	Q25. c	Q26. d	Q27. c	Q28. a
Q29. b	Q30. A	Q31. b	Q32. d	Q33. d	Q34. b	Q35. b
Q36. b	Q37. A	Q38. c	Q39. d			

Chapter 02

Q01. d	Q02. b	Q03. b	Q04. a	Q05. a	Q06. a	Q07. c
Q08. c	Q09. a	Q10. a	Q11. c	Q12. c	Q13. c	Q14. b
Q15. d	Q16. d	Q17. c	Q18. d	Q19. c	Q20. c	Q21. a
Q22. d	Q23. d	Q24. d	Q25. b	Q26. a	Q27. b	Q28. a
Q29. c	Q30. c	Q31. b	Q32. a	Q33. b	Q34. d	Q35. b
Q36. a	Q37. a	Q38. b	Q39. a	Q40. b	Q41. b	Q42. b
Q43. c	Q44. b	Q45. b	Q46. a	Q47. a	Q48. c	Q49. d
Q50. d	Q51. b	Q52. d	Q53. c	Q54. a	Q55. d	Q56. a
Q57. d	Q58. c	Q59. d				

Chapter 03

Q01. a	Q02. c	Q03. d	Q04. d	Q05. c	Q06. c	Q07. b
Q08. a	Q09. b	Q10. c	Q11. c	Q12. c	Q13. c	Q14. b
Q15. c	Q16. c	Q17. a	Q18. a	Q19. d	Q20. c	Q21. d
Q22. c	Q23. a	Q24. b	Q25. a	Q26. c	Q27. c	Q28. d
Q29. c	Q30. c	Q31. b	Q32. a	Q33. a	Q34. a	Q35. b
Q36. a	Q37. d	Q38. d	Q39. b	Q40. c	Q41. c	Q42. a
Q43. a	Q44. a	Q45. a	Q46. b	Q47. a	Q48. d	Q49. b
Q50. a	Q51. c	Q52. a	Q53. a	Q54. b	Q55. a	Q56. d
Q57. d	Q58. c					

Chapter 04

Q01. b	Q02. a	Q03. c	Q04. a	Q05. d	Q06. a	Q07. a
Q08. b	Q09. d	Q10. d	Q11. d	Q12. b	Q13. a	Q14. a
Q15. c	Q16. b	Q17. a	Q18. c	Q19. a	Q20. b	Q21. a
Q22. d	Q23. b	Q24. b	Q25. d	Q26. b	Q27. a	Q28. c
Q29. b	Q30. b	Q31. d	Q32. b	Q33. c	Q34. c	Q35. b
Q36. b	Q37. d	Q38. a	Q39. c	Q40. c	Q41. c	Q42. b
Q43. c	Q44. b	Q45. b	Q46. b	Q47. a	Q48. b	

Chapter 05

Q01. c	Q02. b	Q03. d	Q04. a	Q05. c	Q06. d	Q07. c
Q08. b	Q09. a	Q10. a	Q11. d	Q12. a	Q13. d	Q14. d
Q15. a	Q16. b	Q17. d	Q18. c	Q19. a	Q20. d	Q21. b
Q22. a	Q23. d					

Chapter 06

Q01. d	Q02. c	Q03. b	Q04. d	Q05. b	Q06. b	Q07. a
Q08. a	Q09. b	Q10. b	Q11. a	Q12. a	Q13. c	Q14. b
Q15. c	Q16. d.					