

ARTHI EDUCATIONAL CENTRE**CREATIVE ONE MARK - UNIT 3,4**

10th Standard

Date : 27-Mar-24

Reg.No. : **Maths**

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Time : 01:00:00 Hrs

Total Marks : 161

I. ANSWER ALL QUESTION

161 x 1 = 161

1) How many times 5 bells ring together in 1 hour if they start together and ring at intervals of 2, 3, 4, 5 and 6 sec respectively?

(a) **71 times** (b) 59 times (c) 60 times (d) 61 times

2) If $f(x) = g(x) \cdot q(x) + r(x)$, _____ must be added to $f(x)$ to make $f(x)$ completely divisible by $g(x)$

(a) **p(x)** (b) $g(x)$ (c) $q(x)$ (d) $-q(x)$

3) If three planes are parallel then the number of possible point(s) of intersection is/are _____

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

4) Ajay and Vijay solved an equation. In solving it, Ajay made a mistake in the constant term only and got the roots as 8 and 2, while Vijay made a mistake in the coefficient of x only and obtained roots -9 and -1. The correct roots of the equation are _____

(a) **8, 1** (b) -9, 2 (c) -8, -2 (d) 9, 1

5) The non diagonal elements in any unit matrix are _____

(a) **0** (b) 1 (c) m (d) n

6) Which of the following are linear equations in three variables _____

(a) $2x = z$ (b) $2\sin x + y \cos y + z \tan z = 2$ (c) $x + 2y^2 + z = 3$ (d) **$x - y - z = 7$**

7) Graphically an infinite number of solutions represents _____

(a) three planes with no point in common (b) three planes intersecting at a single point

(c) **three planes intersecting in a line or coinciding with one another** (d) None

8) Which of the following is correct

- (i) Every polynomial has finite number of multiples
- (ii) LCM of two polynomials of degree 2 may be a constant
- (iii) HCF of 2 polynomials may be constant
- (iv) Degree of HCF of two polynomials is always less than degree of LCM

(a) (i) and (ii) (b) **(iii) and (iv)** (c) (iii) only (d) (iv) only

9) The HCF of two polynomials $p(x)$ and $q(x)$ is $2x(x + 2)$ and LCM is $24x(x + 2)^2(x - 2)$ if $p(x) = 8x^3 + 32x^2 + 32x$, then $q(x)$ _____

(a) $4x^3 - 16x$ (b) **$6x^3 - 24x$** (c) $12x^3 + 24x$ (d) $12x^3 - 24x$

10) Consider the following statements:

- (i) The HCF of $x+y$ and x^8-y^8 is $x+y$
- (ii) The HCF of $x+y$ and x^8+y^8 is $x+y$
- (iii) The HCF of $x-y$ and x^8+y^8 is $x-y$
- (iv) The HCF of $x-y$ and x^8-y^8 is $x-y$

(a) (i) and (ii) (b) (ii) and (iii) (c) **(i) and (iv)** (d) (ii) and (iv)

11) For what set of values $\frac{x^2+5x+6}{x^2+8x+15}$ is undefined _____

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12) $\frac{x^2+7x+12}{x^2+8x+15} \times \frac{x^2+5x}{x^2+6x+8} =$ _____

- (a) $x+2$ (b) $\frac{x}{x+2}$ (c) $\frac{35x^2+60x}{48x^2+120}$ (d) $\frac{1}{x+2}$

13) If $\frac{p}{q} = a$ then $\frac{p^2+q^2}{p^2-q^2}$ _____

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

14) The square root of $4m^2 - 24m + 36$ is _____

- (a) $4(m-3)$ (b) **$2(m-3)$** (c) $(2m-3)^2$ (d) $(m-3)$

15) The product of the sum and product of roots of equation $(a^2-b^2)x^2-(a+b)^2x+(a^3-b^3) = 0$ is _____

- (a) $\frac{a^2+ab+b^2}{(a-b)}$ (b) $\frac{a-b}{a+b}$ (c) $\frac{a-b}{a+b}$ (d) $\frac{a-b}{a^2+ab+b^2}$

16) The real roots of the quadratic equation x^2-x-1 are _____

- (a) 1, 1 (b) -1, 1 (c) $\frac{1+\sqrt{5}}{2}, \frac{1-\sqrt{5}}{2}$ (d) None

17) A Quadratic polynomial whose one zero is 5 and sum of the zeroes is 0 is given by _____

- (a) **x^2-25** (b) x^2-5 (c) x^2-5x (d) x^2-5x+5

18) Axis of symmetry in the term of vertical line separates parabola into _____

- (a) 3 equal halves (b) 5 equal halves (c) **2 equal halves** (d) 4 equal halves

19) The parabola $y = -3x^2$ is _____

- (a) Open upward (b) Open downward (c) **Open rightward** (d) Open leftward

20) Choose the correct answer

- (i) Every scalar matrix is an identity matrix
- (ii) Every identity matrix is a scalar matrix
- (iii) Every diagonal matrix is an identity matrix
- (iv) Every null matrix is a scalar matrix

- (a) (i) and (iii) only (b) (iii) only (c) (iv) only (d) **(ii) and (iv) only**

21) If $2A + 3B = \begin{bmatrix} 2 & -1 & 4 \\ 3 & 2 & 5 \end{bmatrix}$ and $A + 2B = \begin{bmatrix} 5 & 0 & 3 \\ 1 & 6 & 2 \end{bmatrix}$ then B = [hint: $B = (A+2B)-(2+3B)$]

- (a) $\begin{bmatrix} 8 & -1 & -2 \\ -1 & 10 & -1 \end{bmatrix}$ (b) $\begin{bmatrix} 8 & -1 & 2 \\ -1 & 10 & -1 \end{bmatrix}$ (c) $\begin{bmatrix} 8 & 1 & 2 \\ -1 & 10 & -1 \end{bmatrix}$ (d) $\begin{bmatrix} 8 & 1 & 2 \\ 1 & 10 & 1 \end{bmatrix}$

22) If $\begin{bmatrix} 4 & 3 & 2 \end{bmatrix} \begin{bmatrix} 1 \\ -2 \\ x \end{bmatrix} = [6]$, then x is _____

- (a) 4 (b) 3 (c) **2** (d) 1

23) If $A = \begin{bmatrix} y & 0 \\ 3 & 4 \end{bmatrix}$ and $I = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ then $A^2 = 16I$ for _____

- (a) **$y = 4$** (b) $y = 5$ (c) $y = -4$ (d) $y = 16$

24) If P and Q are matrices, then which of the following is true?

- (a) **$PQ \neq QP$** (b) $(P^T)^T \neq P$ (c) $P + Q \neq Q + P$ (d) All are true

25) If $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \\ 5 & 6 \end{bmatrix}_{3 \times 2}$ $B = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix}_{2 \times 3}$ then which of the following products can be made from these matrices

- (i) A^2
- (ii) B^2
- (iii) AB
- (iv) BA

- (a) (i) only (b) (ii) and (iii) only (c) **(iii) and (iv) only** (d) all the above

26) find the number of zeros in this polynomial $ax^5 + bx^3 + cx^2 + dx + e$ [Kindly send me your Key Answers to our email id - padasalai.net@gmail.com](mailto:padasalai.net@gmail.com)

27) If ΔABC is an isosceles triangle with right angle $C = 90^\circ$ and $AC = 5\text{cm}$, then AB is _____

- (a) **2.5cm** (b) 5cm (c) 10cm (d) $4\sqrt{2}\text{cm}$

28) If α and β are the roots of $ax^2 + bx + c = 0$ then one of the quadratic equations whose roots are $1/\alpha$ and $1/\beta$ is _____

- (a) **$ax^2 + bx + c = 0$** (b) $bx^2 + ax + c = 0$ (c) $cx^2 + bx + a = 0$ (d) $cx^2 + ax + b = 0$

29) The value of x in $(x + 2) + 2(x - 1) = 4x - 3$

- (a) 2 (b) **3** (c) -2 (d) -3

30) solve for x : $(x - \frac{1}{2})^2 - (x - \frac{3}{2})^2 = x + 2$

- (a) **4** (b) 8 (c) -4 (d) -8

31) If x men can do a piece of work in y days, in how many days will z men do the same work?

- (a) $\frac{xz}{y}$ (b) $\frac{xy}{z}$ (c) $\frac{yz}{x}$ (d) xyz

32) Find the value of x and y if $\frac{5}{y} - \frac{2}{x} = \frac{7}{6}$ and $\frac{36}{x} - \frac{24}{y} = 1$

- (a) **$x = 4, y = 3$** (b) $x = -4, y = 3$ (c) $x = -4, y = -3$ (d) $x = 4, y = -3$

33) The solution of $x^2 - 25 = 0$ is _____

- (a) no real roots (b) real and equal roots (c) **real and unequal roots** (d) imaginary roots

34) What should be the value of P if $3x + 2y = 8$ and $6x + 4y = 9$ have infinitely many solutions?

- (a) 3 (b) **16** (c) 5 (d) 6

35) What should be the value of m in the pair of equations $4x + my + 9 = 0$ and $3x + 4y + 18 = 0$ to have unique solutions?

- (a) $m \neq 16$ (b) $m \neq 15$ (c) **$m \neq \frac{16}{3}$** (d) $m \neq \frac{15}{3}$

36) If the Sum of two numbers is 640 and their difference is 280, then the numbers are _____

- (a) 140, 500 (b) **180, 460** (c) 130, 510 (d) 150, 490

37) The total salary of 15 men and 8 women is Rs 3050. The difference of salaries of 5 women and 3 men is Rs 50. Find the sum of the salaries of 3 men and 5 women

- (a) Rs 900 (b) Rs 850 (c) **Rs 950** (d) Rs 1000

38) Find the solution to the system $x + y + z = 2$, $6x - 4y + 5z = 31$ and $5x + 2y + 2z = 13$

- (a) **(3, -2, 1)** (b) (2, -3, 1) (c) (1, 2, 3) (d) (-1, -2, -3)

39) The solution of the system of equations $4x + 2y - 4z = -18$, $8x - 2y - 5z = -18$ and $-16x - 2y - z = -2$.

- (a) (1, 0, 4) (b) (4, 0, 1) (c) (0, -1, -4) (d) **(0, -1, 4)**

40) The GCD of two numbers is 36 and their LCM is 648. The product of two numbers is _____

- (a) **23328** (b) 648 (c) 3888 (d) 23348

41) The LCM of $a^2 + 3a + 2$, $a^2 + 5a + 6$ and $a^2 + 4a + 4$ is _____

- (a) $(a + 2)^2(a + 3)$ (b) $(a + 2)^2(a + 1)$ (c) **$(a + 2)^2(a + 3)(a + 1)$** (d) $(a + 3)(a + 2)(a + 1)$

42) The L.C.M of $x^3 - a^3$ and $(x - a)^2$ is _____

- (a) $(x^3 - a^3)(x + a)$ (b) $(x^3 - a^3)(x - a)^2$ (c) **$(x - a)^2(x^2 + ax + a^2)$** (d) $(x + a)^2(x^2 + ax + a^2)$

43) The GCD of $10(x^2 + x - 20)$, $15(x^2 - 3x - 4)$ and $20(x^2 + 2x + 1)$ is _____

- (a) $5(x - 4)$ (b) **5** (c) $5(x + 1)$ (d) $5(x + 1)(x - 1)$

44) How many times 5 bells ring together in 1 hour if they start together and ring at intervals of 2, 3, 4, 5 and 6 sec respectively?

- (a) 71 times (b) **60 times** (c) 59 times (d) 61 times

45) GCD of $x^2 - \frac{1}{x^2}$, $x^2 - 2 + \frac{1}{x^2}$ and $x^3 - \frac{1}{x^3} - 3x - \frac{3}{x}$ is

- (a) $x^2 - \frac{1}{x^2}$ (b) $(x - \frac{1}{x})^3(x + \frac{1}{x})$ (c) **$x - \frac{1}{x}$** (d) $(x - \frac{1}{x})^2$

(a) $36xy^2z^2$ (b) $36x^2y^2z$ (c) $36x^2y^2z^2$ (d) $3x^2y$

47) If the GCD and LCM of two expressions are $x + 2$ and $(x + 2)^2(x - 2)$ respectively, then the two expressions are _____

(a) $(x + 2), (x - 2)$ (b) $(x + 2)^2, (x^2 - 4)$ (c) $(x + 2), (x^2 - 4)$ (d) $(x + 2)^2, (x - 2)$

48) The GCD of $x^2 + 3x + 2$ and $x^3 + 9x^2 + 23x + 15$ is

(a) $(x + 1)$ (b) $(x + 2)$ (c) $(x + 1)(x + 2)$ (d) $(x + 1)(x - 1)$

49) The biggest length of 4 tape that can be used for measuring both of lengths 3m, 5m, 10m and 90m is _____

(a) 30 (b) 50 (c) **90** (d) 100

50) The LCM of two numbers is $a + b$ and the GCD is $k(a - b)$. If one of the numbers is k , the other number is _____

(a) $\frac{ka}{b}$ (b) kab (c) $a^2 - b^2$ (d) $\frac{ka+b}{ka-b}$

51) The GCD and LCM of a and b are 27 and 2079 respectively. If a is divided by 9, the quotient is 21. Then b is _____

(a) 243 (b) 189 (c) 113 (d) **297**

52) The LCM of $8x^4y^2z^3, 10xy^3z^5$ and $12x^2y^2z^4$ is

(a) $120x^2y^2z^2$ (b) $120x^4y^3z^5$ (c) $2xy^2z^3$ (d) $120x^3y^3z^5$

53) The LCM of $x^2 - 3ax + 2a^2, x^2 - 4ax + 4a^2$ and $x^2 - ax - 2a^2$ is

(a) $(x - 2a)^2(x^2 - a^2)$ (b) $(x - a)^2(x - 2a)$ (c) $(x - a)(x - 2a)(x - 3a)$ (d) $(x - 2a)^3$

54) If a and b are two positive integers where $a > 0$ b is a factor of a , then HCF of a and b is _____

(a) **b** (b) a (c) $3ab$ (d) $\frac{a}{b}$

55) If $(x - 6)$ is the HCF of $x^2 - 2x - 24$ and $x^2 - kx - 6$ then the value of k is _____

(a) 3 (b) **5** (c) 6 (d) 8

56) Simplified form of $\frac{x^3 - 3x^2}{9x^2 - x^4}$ is _____

(a) $\frac{1}{x+3}$ (b) $-\frac{1}{x+3}$ (c) $\frac{1}{3(x+1)}$ (d) $\frac{1}{3(x-1)}$

57) Simplest form of $\frac{a^2 - b^2}{a^2 - 3ab + 2b^2}$ is _____

(a) $\frac{(a+b)^2}{a-2b}$ (b) $\frac{a+b}{a-2b}$ (c) $\frac{a-b}{a-2b}$ (d) $\frac{a+b}{a+2b}$

58) Simplest form of $\frac{1}{(x+1)(x+2)} + \frac{1}{(x+2)(x+3)} + \frac{1}{(x+3)(x+1)}$ is _____

(a) $\frac{1}{(x+1)(x+3)}$ (b) $\frac{2}{(x+1)(x+3)}$ (c) $\frac{3}{(x+2)(x+3)}$ (d) $\frac{3}{(x+1)(x+3)}$

59) If $x = 2\left(t + \frac{1}{t}\right)$ and $y = 3\left(t - \frac{1}{t}\right)$ and then $\frac{x^2}{4} - \frac{y^2}{9}$ is _____

(a) 3 (b) -4 (c) **4** (d) -3

60) Simplified form of $\frac{p+p^2+p^3+p^4+p^5+p^6+p^7}{p^{-3}+p^{-4}+p^{-5}+p^{-6}+p^{-7}+p^{-8}+p^{-9}}$

(a) **P^{10}** (b) P^{-10} (c) P^9 (d) P^{-9}

61) Simplest form of $\frac{x^7 + 2x^6 + x^5}{x^3(x+1)^8}$ is

(a) $\frac{x^2}{(x^6+1)}$ (b) $\frac{x^2}{(x+1)^6}$ (c) $\frac{x^3}{x+1}$ (d) $\frac{x^4}{x+2}$

62) $\frac{x^2 - 5x - 14}{x^2 - 3x + 2} \times \frac{x^2 - 4}{x^2 - 14x + 49} =$ _____

(a) $\frac{x+2}{x+7}$ (b) $\frac{(x+2)^2}{x-7}$ (c) $\frac{(x+2)^2}{(x-1)(x-7)}$ (d) $\frac{x-2}{(x-1)(x-7)}$

63) $\frac{m^2 - 9}{m^2 + 5m + 6} \div \frac{3 - m}{m + 2} = ?$

(a) 1 (b) 3 (c) -3 (d) **-1**

64) Simplify $\frac{(y^2 + 5y + 4)}{\left(\frac{y^2 - 1}{y + 5}\right)}$

(a) $\frac{y-1}{y-4}$ (b) $\frac{y+5}{y-1}$ (c) $\frac{(y+4)(y+3)}{y-1}$ (d) $\frac{(y+4)(y+3)}{y-1}$

65) $\frac{x^2}{x+3} + \frac{11x+24}{x+3} =$ _____

- (a) **x + 8** (b) x - 8 (c) 8 - x (d) x + 3

66) on dividing $\frac{x^2-25}{x+3}$ by $\frac{x+5}{x^2-9}$ is equal to

- (a) **.(x - 5)(x - 3)** (b) .(x - 5)(x + 3) (c) .(x + 5)(x - 3) (d) .(x + 5)(x + 3)

67) What is the result in simplest form when $\frac{4x-5}{x^2-64}$ is subtracted from $\frac{5x+3}{x^2-64}$

- (a) x - 8 (b) **(x - 8)⁻¹** (c) (x - 8)⁻² (d) (x - 8)⁻³

68) Excluded values of $\frac{2x+1}{x^2-x-6}$ are

- (a) 1, -2 (b) **-2, 3** (c) 2, -3 (d) 2, 3

69) Excluded values of $\frac{4x-2}{2x^2+x-1}$ is / are

- (a) $\frac{1}{2}$ (b) $\frac{1}{3}$ (c) $-\frac{1}{2}$ (d) **-1**

70) The excluded value of the rational expression $\frac{x^3+8}{x^2-2x-8}$

- (a) 8 (b) 2 (c) **4** (d) 1

71) If a + b + c = 0, then the value of $\frac{(a+b)^2}{ab} + \frac{(b+c)^2}{bc} + \frac{(c+a)^2}{ca}$ is _____

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

72) Number of methods to find square root of an algebraic expression are _____

- (a) 3 (b) 4 (c) **5** (d) 2

73) The square root of (x + 1)(x + 2)(x + 3) + 1 is _____

- (a) x² + 2x + 3 (b) **x² + 5x + 5** (c) x² + 3x + 2 (d) x² + 2x + 1

74) If the polynomial 16x⁴ - 24x³ + 41x² - mx + 16 be a perfect square, then the value of 'm' is _____

- (a) 12 (b) -12 (c) **24** (d) -24

75) $\sqrt{\frac{x^{-7}y^{14}}{x^{14}y^{-28}}} \div \sqrt{\frac{x^{-15}y^{25}}{x^{10}y^{-15}}}$

- (a) $\sqrt{x^3y^5}$ (b) xy (c) **x²y** (d) xy²

76) $\sqrt{(4a^2)(6b^2)(3a^2b^2)} =$ _____

- (a) a²b² (b) **6 $\sqrt{2}$ a²b²** (c) 72a⁴b⁴ (d) a⁴b⁴

77) Which of the following is a quadratic equation?

- (a) x^{1/2} + 2x + 3 = 0 (b) (x - 1)(x + 4) = x² + 1 (c) **x² - 3x + 5 = 0** (d) (2x + 1)(3x - 4) = 6x² + 3

78) The quadratic equation whose roots are 2 + $\sqrt{2}$ and 2 - $\sqrt{2}$ is _____

- (a) **x² - 4x + 2 = 0** (b) x² - 2x + 2 = 0 (c) x² + 2x - 4 = 0 (d) x² - 2x + 4 = 0

79) The Quadratic equation whose roots $\frac{p}{q}, \frac{-q}{p}$ is _____

- (a) qx² - (q² + p²)x - pq = 0 (b) pqx² - (p² - q²)x - pq = 0 (c) px² - (p² + 1)x + p = 0
(d) p²x² - (p² - q²)x - pq = 0

80) If ax² + bx + c is a perfect square, then b² =

- (a) 2ac (b) ac (c) **4ac** (d) $\sqrt{2ac}$

81) One root of px² + qx + r = 0 is r then the second root is _____

- (a) p (b) q (c) $\frac{1}{q}$ (d) **$\frac{1}{p}$**

82) The condition for px² + qx + r = 0 to be a pure quadratic equation is then the second root is _____

- (a) p = 0 (b) **q = 0** (c) r = 0 (d) p = q = 0

83) Common root of x² + x - 6 = 0 and x² + 3x - 10 = 0 is _____

84) Ratio of the sum of the roots of $x^2 - 9x + 18 = 0$ to the product of the roots is _____

- (a) 1 : 2 (b) 2 : 1 (c) -1 : 2 (d) -2 : 1

85) If the discriminant of $3x^2 - 14x + k = 0$ is 100, then $k =$ _____

- (a) 8 (b) 32 (c) 16 (d) 24

86) The roots of the equation $4x^2 - 2x + 8 = 0$ are

- (a) Real and equal (b) Rational and not equal (c) Irrational (d) **Not real**

87) The roots of the equation $(x - a)(x - b) = b^2$ are _____

- (a) Real and equal (b) **Real and unequal** (c) Imaginary (d) equal

88) The Discriminant of $\sqrt{x^2 + x + 1} = 2$ is _____

- (a) -3 (b) **13** (c) 11 (d) 12

89) If a and b are the roots of the equation $x^2 - 6x + 6 = 0$, then the value of $a^2 + b^2$ is _____

- (a) 36 (b) **24** (c) 12 (d) 6

90) Ajay and Vijay Solved an equation. In solving it Ajay made a mistake in the constant term only and got the roots as 8 and 2, while Vijay made a mistake in the coefficient of x only and obtained the roots as -9 and -1. The correct roots of the equation are _____

- (a) 8, -1 (b) -9, 2 (c) -8, -2 (d) **9, 1**

91) The roots of the equation $x^2 + kx + 12 = 0$ will differ by unity only when _____

- (a) $k = \pm\sqrt{12}$ (b) $k = \pm\sqrt{48}$ (c) $k = \pm\sqrt{47}$ (d) $k = \pm\sqrt{49}$

92) If the sum of the squares of two consecutive even numbers is 100, then the numbers are _____

- (a) **6, 8 or -8, -6** (b) -6, 8 or -8, -6 (c) -6, -8 or 6, -8 (d) -6, -8 or 7, 8

93) What is the smallest integral value of k such that $2x(kx - 4) - x^2 + 6 = 0$ has no real roots?

- (a) 3 (b) 1 (c) **2** (d) 4

94) If α and β are the roots of $ax^2 + 2bx + c = 0$ then $\sqrt{\frac{\alpha}{\beta}} + \sqrt{\frac{\beta}{\alpha}} =$ _____

- (a) $\frac{2b}{ac}$ (b) $\frac{2b}{\sqrt{ac}}$ (c) $\frac{-2b}{\sqrt{ac}}$ (d) $\frac{-b}{\sqrt{ac}}$

95) If α, β are the roots of the equation $x^2 + kx + 12 = 0$, such that $\alpha - \beta = 1$, then the value of k _____

- (a) 0 (b) ± 5 (c) ± 1 (d) **± 7**

96) If α and β are the roots of the equation $ax^2 + bx + c = 0$, identify the quadratic equation whose roots are $\alpha + \beta$ and $\alpha\beta$

- (a) $a^2x^2 + a(b - c)x + bc = 0$ (b) $a^2x^2 + a(b - c)x - bc = 0$ (c) $ax^2 + (b + c)x + bc = 0$ (d) $ax^2 - (b + c)x - bc = 0$

97) The order of the matrix A is 3×5 and that of B is 2×3 . The order of the matrix BA is _____

- (a) 2×3 (b) 3×2 (c) **2×5** (d) 5×2

98) For the given matrix $A = \begin{bmatrix} 1 & 3 & 5 \\ 2 & 4 & 6 \end{bmatrix}$ the order of the matrix $(A^T)^T$ is

- (a) **2×3** (b) 3×2 (c) 3×4 (d) 4×3

99) If $A = \begin{bmatrix} 0 & 2 \\ 3 & -4 \end{bmatrix}$ and $kA = \begin{bmatrix} 0 & 3a \\ 2b & 24 \end{bmatrix}$, then the values of k, a, b are respectively

- (a) -6, -12, -18 (b) -6, 4, 9 (c) **-6, -4, -9** (d) -6, 12, 18

100) If $m[3 - 4] + n[4 - 3] =$ then find $3m + 7n$

- (a) 3 (b) 5 (c) 10 (d) **1**

101) If $A = \begin{bmatrix} x & 1 \\ 1 & 0 \end{bmatrix}$ and $A^2 = I$, then $x =$

- (a) **0** (b) 1 (c) -1 (d) 2

102) If $\mathbf{A} = \begin{bmatrix} 1 & -2 \\ 5 & 3 \end{bmatrix}$ then $\mathbf{A} + \mathbf{A}^{\mathbf{W}}$ www.Padasalai.Net

(a) $\begin{bmatrix} 2 & 3 \\ 3 & 6 \end{bmatrix}$ (b) $\begin{bmatrix} 2 & -4 \\ 10 & 6 \end{bmatrix}$ (c) $\begin{bmatrix} 2 & 4 \\ -10 & 6 \end{bmatrix}$ (d) None of these

103) If $\mathbf{U} = \begin{bmatrix} 2 & -3 & 4 \end{bmatrix}$, $\mathbf{V} = \begin{bmatrix} 3 \\ 2 \\ 1 \end{bmatrix}$, $\mathbf{X} = \begin{bmatrix} 0 & 2 & 3 \end{bmatrix}$ and $\mathbf{Y} = \begin{bmatrix} 2 \\ 2 \\ 4 \end{bmatrix}$, then $\mathbf{UV} + \mathbf{XY} =$

(a) 20 (b) [-20] (c) -20 (d) [20]

104) If $\mathbf{A} = \begin{bmatrix} 3 & -3 \\ -3 & 3 \end{bmatrix}$ and $\mathbf{A}^2 = \mathbf{kA}$, then $\mathbf{k} =$

(a) 4 (b) 5 (c) 6 (d) 7

105) If $\mathbf{A} + \mathbf{B} = \begin{bmatrix} 10 & 8 \\ 8 & 4 \end{bmatrix}$ and $\mathbf{A} - \mathbf{B} = \begin{bmatrix} 2 & -4 \\ 0 & 6 \end{bmatrix}$, then $\mathbf{A} =$

(a) $\begin{bmatrix} 6 & 2 \\ 4 & 5 \end{bmatrix}$ (b) $\begin{bmatrix} 6 & 2 \\ 4 & 6 \end{bmatrix}$ (c) $\begin{bmatrix} 4 & 6 \\ 4 & -1 \end{bmatrix}$ (d) $\begin{bmatrix} 1 & 3 \\ 4 & 5 \end{bmatrix}$

106) If $\mathbf{A} = \begin{bmatrix} 5 & x \\ y & 6 \end{bmatrix}$, $\mathbf{B} = \begin{bmatrix} -4 & y \\ -4 & -5 \end{bmatrix}$ and $\mathbf{A} + \mathbf{B} = \mathbf{I}$, then the values of x and y respectively are

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

107) Number of matrices obtained with 36 elements is

(a) 10 (b) 9 (c) 8 (d) 7

108) If $\mathbf{A} = \begin{bmatrix} 2 & 0 \\ 0 & 1 \end{bmatrix}$ and $f(\mathbf{x}) = \mathbf{x}^2 - 5\mathbf{x} + 4\mathbf{I}$, then $f(\mathbf{A}) =$

(a) $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ (b) $\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$ (c) $\begin{bmatrix} 2 & 0 \\ 0 & 2 \end{bmatrix}$ (d) $\begin{bmatrix} -2 & 0 \\ 0 & 0 \end{bmatrix}$

109) If order of $\mathbf{A}, \mathbf{B}, \mathbf{C}$ are 3×4 , 5×4 and 5×8 , then the order of $(\mathbf{AB}^T\mathbf{C})$ is

(a) 8×3 (b) 3×8 (c) 3×4 (d) 4×5

110) Given $\mathbf{A} = \begin{bmatrix} -1 & 0 \\ 0 & 2 \end{bmatrix}$, then $\mathbf{A}^3 - \mathbf{A}^2 =$

(a) $2\mathbf{A}$ (b) $2\mathbf{I}$ (c) \mathbf{A} (d) \mathbf{I}

111) If $\mathbf{AB} = \mathbf{A}$, $\mathbf{BA} = \mathbf{B}$ then $\mathbf{A}^2 + \mathbf{B}^2 =$

(a) $\mathbf{A} + \mathbf{B}$ (b) $\mathbf{A} - \mathbf{B}$ (c) \mathbf{AB} (d) $\mathbf{0}$

112) The concept of three Variables is used in _____

(a) **Computer Coding System** (b) Geo-positioning system (c) Binary Calculation System (d) Programe processing system

113) If $ax^2 + bx + c = 0$ has equal roots, then \mathbf{C} is equal _____.

(a) $\frac{b^2}{2a}$ (b) $\frac{b^2}{4a}$ (c) $\frac{-b^2}{2a}$ (d) $\frac{-b^2}{4a}$

114) The first theorem in Mathematics is _____

(a) Thales Theorem (b) Angle bisector Theorem (c) **Pythagoras Theorem** (d) Alternative segment Theorem

115) If triangle \mathbf{PQR} is similar to triangle \mathbf{LMN} such that $4PQ = LM$ and $QR = 6$ cm then MN is equal to _____

(a) 12 cm (b) **24 cm** (c) 10 cm (d) 36 cm

116) In the given figure $DE \parallel AC$ which of the following is true.

(a) $x = \frac{ay}{b+a}$ (b) $x = \frac{a+b}{ay}$ (c) $x = \frac{ay}{b-a}$ (d) $\frac{x}{y} = \frac{a}{b}$

117) \mathbf{S} and \mathbf{T} are points on sides \mathbf{PQ} and \mathbf{PR} respectively of $\Delta\mathbf{PQR}$ If $PS = 3$ cm, $AQ = 6$ cm, $PT = 5$ cm, and $TR = 10$ cm and then QR

(a) $4ST$ (b) $5ST$ (c) **3ST** (d) $3QR$

118) In the given figure $DE \parallel BC$: $BC:BD = x - 3$, $BA = 2x$, $CE = x - 2$, and $AC = 2x + 3$, Find the value of x .

(a) **3** (b) 6 (c) 9 (d) 12

119) The ratio of the areas of two similar triangles is equal to _____

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- (a) The ratio of their corresponding sides (b) The cube of the ratio of their corresponding sides
(c) The ratio of their corresponding altitudes (d) **The square of the ratio of their corresponding sides**

120) If ABC is a triangle and AD bisects A, AB = 4cm, BD = 6cm, DC = 8cm then the value of AC is _____

- (a) $\frac{16}{3}cm$ (b) $\frac{32}{3}cm$ (c) $\frac{3}{16}cm$ (d) $\frac{1}{2}cm$

121) In a triangle, the internal bisector of an angle bisects the opposite side. Find the nature of the triangle.

- (a) right angle (b) equilateral (c) scalene (d) **isosceles**

122) The height of an equilateral triangle of side a is

- (a) $\frac{a}{2}cm$ (b) $\sqrt{3a}$ (c) $\frac{\sqrt{3}}{2}a$ (d) $\frac{\sqrt{3}}{4}a$

123) The perimeter of a right triangle is 36 cm. Its hypotenuse is 15 cm, then the area of the triangle is _____

- (a) $108 cm^2$ (b) **$54 cm^2$** (c) $27 cm^2$ (d) $216 cm^2$

124) A line which intersects a circle at two distinct points is called _____

- (a) Point of contact (b) **secant** (c) diameter (d) tangent

125) If the angle between two radii of a circle is 90° , the angle between the tangents at the end of the radii is _____

- (a) **50°** (b) 90° (c) 40° (d) 70°

126) In figure $\angle OAB = 60^\circ$ and OA = 6cm then radius of the circle is _____

- (a) $\frac{3}{2}\sqrt{3}cm$ (b) 2 cm (c) **$3\sqrt{3}cm$** (d) $2\sqrt{3}cm$

127) Two concentric circles of radii a and b where $a > b$ are given. The length of the chord of the larger circle which touches the smaller circle is _____

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

128) Three circles are drawn with the vertices of a triangle as centres such that each circle touches the other two if the sides of the triangle are 2cm, 3cm and 4 cm. Find the diameter of the smallest circle.

- (a) **1 cm** (b) 3 cm (c) 5 cm (d) 4 cm

129) In the given figure if OC = 9 cm and OB = 15 cm then OB + BD is equal to _____

- (a) 23 cm (b) 24 cm (c) **27 cm** (d) 30 cm

130) Sides of two similar triangles are in the ratio 4 : 9. Areas of these triangles are in the ratio _____

- (a) 2 : 3 (b) 4 : 9 (c) 81 : 16 (d) **16 : 81**

131) The areas of two similar triangles are respectively $9 cm^2$ and $16 cm^2$. The ratio of their corresponding sides is _____

- (a) **3 : 4** (b) 4 : 3 (c) 2 : 3 (d) 4 : 5

132) If $\triangle ABC$ and $\triangle DEF$ are similar such that $2AB = DE$ and $BC = 8 cm$ and $EF =$ _____

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

133) $\triangle ABC$ is such that $AB = 3 cm$, $BC = 2 cm$ and $CA = 2.5 cm$. If $\triangle DEF \sim \triangle ABC$ and $EF = 4 cm$ then perimeter of $\triangle DEF$ is _____

- (a) 7.5 cm (b) **15 cm** (c) 22.5 cm (d) 30 cm

134) If $\triangle ABC$ and $\triangle DEF$ are similar triangles such that $\angle A = 47^\circ$ and $\angle B = 83^\circ$, then $\angle F =$ _____

- (a) **50°** (b) 60° (c) 70° (d) 80°

135) XY is drawn parallel to the base BC of a $\triangle ABC$ cutting AB at X and AC at Y. If $AB = 4 BX$ and $YC = 2 cm$ and then $AY =$ _____

- (a) 2 cm (b) 4 cm (c) 8 cm (d) **6 cm**

136) In $\triangle ABC$, a line XY parallel to BC at AB at X and AC at Y. If XY bisects $\angle BYC$, then _____

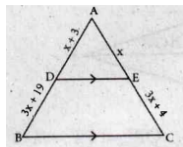
- (a) **$BC = CY$** (b) $BC = BY$ (c) $BC \neq CY$ (d) $BC \neq BY$

137) In $\triangle ABC$, D and E are points on side AB and AC respectively such that $DE \parallel BC$ and $AD : DB = 3 : 1$. If $EA = 3.3cm$ then $AC =$ _____
kindly send me your key Answers to our email id - padasalai.net@gmail.com

138) In $\triangle ABC$ and $\angle A = \angle E = 40^\circ$, $AB : ED = AC : EF$ and $\angle F = 65^\circ$, then $\angle B =$ _____

- (a) 35° (b) 65° (c) **75°** (d) 85°

139) Find the value of x for which $DE \parallel AB$ is _____



- (a) 4 (b) 1 (c) **2** (d) 3

140) In an equilateral triangle $\triangle ABC$, if $AD \perp BC$ then

- (a) $2AB^2 = 3AD^2$ (b) $4AB^2 = 3AD^2$ (c) **$3AB^2 = 4AD^2$** (d) $3AB^2 = 2AD^2$

141) The length of the hypotenuse of an isosceles right triangle whose one side is $4\sqrt{2}$ cm is

- (a) 12 cm (b) **8 cm** (c) $8\sqrt{2}$ cm (d) $12\sqrt{2}$ cm

142) A man goes 24 m due west and then 7 m due north. How far is he from the starting point?

- (a) 31 m (b) 17 m (c) **25 m** (d) 26 m

143) In an isosceles triangle $\triangle ABC$ if $AC = BC$ and $AB^2 = 2AC^2$, then $\angle C =$ _____

- (a) 30° (b) 45° (c) **90°** (d) 60°

144) $\triangle ABC$ is an isosceles triangle in which $\angle C = 90^\circ$, if $AC = 6$ cm, then $AB =$ _____

- (a) **$6\sqrt{2}$ cm** (b) 6 cm (c) $2\sqrt{6}$ cm (d) $4\sqrt{2}$

145) If TP and TQ are two tangents to a circle with centre 'O' so that $\angle POQ = 110^\circ$, then $\angle PTQ$ is

- (a) 60° (b) **70°** (c) 80° (d) 90°

146) The length of the tangent drawn from a point 8 cm away from the centre of a circle of radius 6 cm is _____

- (a) $\sqrt{7}$ cm (b) **$2\sqrt{7}$ cm** (c) 10 cm (d) 5 cm

147) PQ is a tangent to a circle with center 'O' at the point R if $\triangle OPQ$ is an isosceles triangle, then $\angle OQP$ is _____

- (a) 30° (b) **45°** (c) 60° (d) 90°

148) A tangent PQ at a point p of circle of radius 5 cm meets a line through the center 'O', at a point e such that $OQ = 12$ cm, Length PQ is _____

- (a) 12 cm (b) 13 cm (c) 8.5 cm (d) **$\sqrt{119}$ cm**

149) If triangle PQR is similar to LMN such that $4PQ = LM$ and $QR = 6$ cm, then MN is equal to _____

- (a) 12 cm (b) **24 cm** (c) 10 cm (d) 36 cm

150) From a point Q, the length of the tangent to a circle is 24 cm and the distance of a Q from, the center is 25 cm. The radius of the circle is _____

- (a) **7 cm** (b) 12 cm (c) 15 cm (d) 24.5 cm

151) S and T are points on sides PQ and PR respectively of PQR. If $PS = 3$ cm, $SQ = 6$ cm, $PT = 5$ cm and $TR = 10$ cm, then $QR =$ _____

- (a) 4ST (b) 5ST (c) **3ST** (d) 3QR

152) The ratio of the areas of two similar triangles is equal to _____

- (a) The ratio of their corresponding sides (b) The cube of the ratio of their corresponding sides
(c) The ratio of their corresponding altitudes (d) **The square of the ratio of their corresponding sides**

153) If ABC is a triangle and AD bisects _____

- (a) $\frac{16}{3}$ cm (b) $\frac{32}{3}$ cm (c) $\frac{3}{16}$ cm (d) $\frac{1}{2}$ cm

154) In a triangle, the internal bisector of an angle bisects the opposite side. Find the nature of the triangle.

- (a) right angle (b) **equilateral** (c) scalene (d) isosceles

155) The height of an equilateral triangle whose side is a units is _____ www.Trb TnpSC.com

- (a) $\frac{a}{2}$ (b) $\sqrt{2}a$ (c) $\frac{\sqrt{3}}{2}a$ (d) $\frac{\sqrt{3}}{4}a$

156) The perimeter of a right triangle is 40 cm. Its hypotenuse is 15 cm, then the area of the triangle is _____

- (a) **100 cm²** (b) 200 cm² (c) 160 cm² (d) 225 cm²

157) A line which intersects a circle at two distinct points is called _____

- (a) point of contact (b) secant (c) **diameter** (d) tangent

158) If the angle between two radii of a circle is 130° , then the angle between the tangents at the end of the radii is _____

- (a) **50°** (b) 90° (c) 40° (d) 70°

159) Two concentric circles of radii a and b where $a > b$ are given. The length of the chord of the larger circle which touches the smaller circle is _____

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

160) Three circles are drawn with the vertices of a triangle as centres such that each circle touches the other two if the sides of the triangle are 2 cm, 3 cm and 4 cm, find the diameter of the smallest circle.

- (a) **1 cm** (b) 3 cm (c) 5 cm (d) 4 cm

161) _____ is a cevian that divides the angle, into two equal halves.

- (a) **parallel line** (b) perpendicular line (c) angular bisector (d) perpendicular bisector