



Al-Razi Guess Paper consist of 100 MCQs, 100 Short Questions and Long Questions to get 100% Success in Examination

**Objective Type**  
(Multiple Choice Questions)

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|---|--|---|
| <p>1. <math>\sqrt{7}</math> is:<br/>A integer<br/>B rational number<br/>C irrational number<br/>D natural number</p> <p>2. 0.444... is a:<br/>A terminating decimal number<br/>B non-recurring decimal<br/>C recurring decimal number<br/>D all of these</p> <p>3. If <math>n</math> is not a perfect square then <math>\sqrt{n}</math> is:<br/>A rational number<br/>B natural number<br/>C integer<br/>D irrational number</p> <p>4. If the cost price of a pen is Rs 80 and it is sold at Rs 100, what is the profit percentage?<br/>A 20%    b 25%<br/>C 15%    D 10%</p> <p>5. For all <math>\forall x \in R</math>, <math>x = x</math> is called:<br/>a reflexive property<br/>B transitive property<br/>C symmetric property<br/>D trichotomy property</p> <p>6. The decimal representation of a rational number is always:<br/>A Terminating only<br/>B Non-terminating and non-repeating<br/>C Either terminating or non-terminating repeating<br/>D None of the above</p> | <p>7. <math>2^x \times 8^x = 64</math> then <math>x =</math><br/>a <math>\frac{3}{2}</math> B <math>\frac{3}{4}</math> C <math>\frac{5}{6}</math> D <math>\frac{2}{3}</math></p> <p>8. Let <math>a, b, \in R</math> then <math>a = b</math> and <math>b = a</math> is called _____ property.<br/>A reflexive b symmetric<br/>C transitive D additive</p> <p>9. Scientific notation of 0.00034 is:<br/>A <math>3.4 \times 10^3</math> b <math>3.4 \times 10^{-4}</math><br/>C <math>3.4 \times 10^4</math> D <math>3.4 \times 10^{-3}</math></p> <p>10. A number in scientific notation is written as:<br/>A <math>a \times b^n</math> B <math>a \times n^b</math><br/>C <math>a \times 10^n</math> D <math>10 \times a^n</math></p> <p>11. <math>\log_2 2^3 =</math> _____:<br/>A 1 B 2 C 5 d 3</p> <p>12. A logarithm is based on two _____ words:<br/>A English B Italian<br/>C Chinese d Greek</p> <p>13. If <math>\log 2 = 0.3010</math>, then <math>\log 200</math> is:<br/>A 1.3010 B 0.6010<br/>C 2.3010 D 2.6010</p> <p>14. An antilogarithm in the inverse operation of:<br/>A exponent B base<br/>C logarithm D mantissa</p> <p>15. <math>\log 10,000 =</math><br/>A 2 B 3 C 4 D 5</p> <p>16. <math>3^4 = 81</math> in logarithmic form is:<br/>(a) <math>\log_3 4 = 81</math><br/>B <math>\log_4 3 = 81</math><br/>C <math>\log_3 81 = 4</math><br/>D <math>\log_4 81 = 3</math></p> <p>17. If <math>A = \{ \}</math>, then <math>P(A)</math> is:<br/>A <math>\{ \}</math> B <math>\{1\}</math><br/>C <math>\{ \{ \}</math> D <math>\phi</math></p> | <p>18. The number of elements in a set is called:<br/>A quantity of elements<br/>B height of elements<br/>C size of the set<br/>D type of the set</p> <p>19. If A and B are overlapping sets, then <math>n(A - B)</math> is equal to<br/>A <math>n(A)</math> B <math>n(B)</math><br/>C <math>A \cap B</math> d <math>n(A) - n(A \cap B)</math></p> <p>20. <math>(A \cup B)^c = ?</math><br/>a <math>A^c \cap B^c</math> B <math>A^c \cup B^c</math><br/>C <math>A \cup B</math> D <math>A \cap B</math></p> <p>21. If <math>n(A \cup B) = 50</math>, <math>n(A) = 30</math> and <math>n(B) = 35</math>, then <math>n(A \cap B) =</math> :<br/>A 23 b 15 C 9 D 40</p> <p>22. It is a usual representation of a relation.<br/>A ordered pair<br/>B tabular form<br/>C graph D none</p> <p>23. If <math>f(x) = x^2 - 3x + 2</math>, then the value of <math>f(a + 1)</math> is equal to:<br/>A <math>a + 1</math> B <math>a^2 + 1</math><br/>C <math>a^2 + 2a + 1</math> d <math>a^2 - a</math></p> <p>24. Given that <math>f(x) = 3x + 1</math>, if <math>f(x) = 28</math>, then the value of <math>x</math> is:<br/>a 9 B 27 C 3 D 18</p> <p>25. The factorization of <math>12x + 36</math> is:<br/>a <math>12(x + 3)</math> B <math>12(3x)</math><br/>C <math>12(3x+1)</math> D <math>x(12+36x)</math></p> <p>26. We can factorize a given fraction by:<br/>A concretly B pictorially<br/>C symbolically<br/>d all of these</p> |
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27. The HCF of  $a^3b^3$  and  $ab^2$  is:  
 A  $a^3b^3$     b  $ab^2$   
 C  $a^4b^5$     D  $a^2b$
28. HCF of  $a^2b^2$  and  $a^3b^3$  is:  
 A  $a^3b^3$     B  $a^5b^5$   
 C  $a^2b^2$     D  $ab$
29. The LCM of  $16x^2$ ,  $4x$  and  $30xy$  is:  
 A  $480x^3y$     B  $240xy$   
 C  $240x^2y$     D  $120x^4y$
30. How many methods are there to find the square root of an algebraic expression?  
 A 1    b 2    C 3    D 4
31. The square root of  $x^2 - 6x + 9$  is:  
 a  $\pm(x-3)$     B  $\pm(x+3)$   
 C  $x-3$     D  $x+3$
32. The LCM of  $(a-b)^2$  and  $(a-b)^4$  is:  
 A  $(a-b)^2$     B  $(a-b)^3$   
 C  $(a-b)^4$     D  $(a-b)^6$
33. Solution of  $5x-10=10$  is:  
 A 0    B 50    C 4    D -4
34. The solution of the equation  $4x-3=1$  is:  
 A  $x=4$     B  $x=3$   
 C  $x=2$     d  $x=1$
35. A vertical line divides the plane into  
 A left half plane  
 B right half plane  
 C full plane  
 d two half planes
36. The associated equation of  $x+y \geq 5$  is:  
 A  $x+5 > 5$     B  $x+y < 5$   
 C  $x+y = 5$     D  $x+5 < y$
37.  $3x+4 < 0$  is:  
 A equation    b inequality  
 C not inequality  
 D identity
38. x-intercept of  $x+y=4$  is:  
 a (4,0)    B (0,4)  
 C (4,1)    D (1,4)
39. Corner point is also called:  
 A code    b vertex  
 C curve    D region
40. The solution region restricted to the first quadrant is called:  
 A objective region  
 b feasible region  
 C solution region  
 D constraints region
41. Unit of angle in the International System of Units (SI) is:  
 A degree    B seconds  
 C minutes    d radian
42. In a right triangle, the hypotenuse is 13 units and one of the angles is  $\theta = 30^\circ$ . The length of the opposite side is:  
 a 6.5 units    B 7.5 units  
 C 6 units    D 5 units
43.  $\operatorname{Cosec} \theta = ?$   
 A  $\frac{1}{\cos \theta}$     B  $\frac{1}{\tan \theta}$   
 C  $\frac{1}{\cot \theta}$     d  $\frac{1}{\sin \theta}$
44.  $\sec^2 \theta - \tan^2 \theta =$  \_\_\_\_\_  
 A  $\sin^2 \theta$     b 1  
 C  $\cos^2 \theta$     D  $\cot^2 \theta$
45. According to Pythagoras theorem if  $c$  is hypotenuse of a triangle, then:  
 A  $c^2 = a^2 - b^2$     b  $c^2 = a^2 + b^2$   
 C  $c^2 = b^2 - a^2$   
 D  $a^2 + b^2 + c^2 = 0$
46.  $\frac{5\pi}{24}$  rad = \_\_\_\_\_ degrees:  
 A  $30^\circ$     b  $37.5^\circ$   
 C  $45^\circ$     D  $52.5^\circ$
47.  $292.5^\circ =$  \_\_\_\_\_ rad?  
 A  $\frac{17\pi}{6}$     B  $\frac{17\pi}{4}$   
 C  $1.6\pi$     d  $1.625\pi$
48.  $\cos^2 100\pi + \sin^2 100\pi =$  \_\_\_\_\_:  
 a 1    B 2    C 3    D 4
49. The gradient of two parallel lines is:  
 a Equal    B Zero  
 C Negative reciprocals of each other  
 D Always undefined
50. The midpoint between the points (1,-1), (-1,1) is:  
 A (1,1)    B (-1,-1)  
 C (0,0)    D (2,2)
51. Distance between two points P(1,2) and Q(4,6) is:  
 a 5    B 6  
 C  $\sqrt{13}$     D 4
52. If slope of AB = slope of BC, then the points are:  
 A non-collinear  
 b collinear  
 C perpendicular  
 D None
53. The midpoint of a line segment with endpoints (-2,4) and (6,-2) is:  
 A (4,2)    b (2,1)  
 C (1,1)    D (0,0)
54. The equation of a line parallel to the x-axis and passing through (3,5) is:  
 A  $x=5$     B  $y=3$   
 C  $x=3$     d  $y=5$
55. The equation of a line in point-slope form is:  
 A  $y = m(x+c)$   
 b  $y - y_1 = m(x-x_1)$   
 C  $y = c + mx$   
 D  $ax+by+c = 0$
56. The equation of a line in normal form is:  
 A  $y=mx+c$     B  $\frac{x}{a} + \frac{y}{b} = 1$   
 C  $\frac{x-x_1}{\cos \alpha} = \frac{y-y_1}{\sin \alpha}$   
 d  $x \cos \alpha + y \sin \alpha = p$

57. Which of the following sentences describe deductive reasoning?  
 A general conclusions from a limited number of observations  
 B based on repeated experiments  
 C based on units of information that are accurate  
 d draw conclusion from well-known facts
58. Conjunction of two statements p and q is denoted symbolically as:  
 a  $p \wedge q$  B  $p \vee q$   
 C  $p \sim q$  D  $\sim p$
59. Which of the following statements is the best to represent the negation of the statement "The stove is burning"?  
 a the stove is not burning.  
 B the stove is dim  
 C the stove is turned to low heat  
 D it is both burning and not burning.
60. What is the truth value of the statement  $P \vee Q$  if P is false and Q is true?  
 a True B False  
 C Cannot be determined  
 D Always false
61. Contrapositive of  $q \rightarrow p$  is:  
 A  $q \rightarrow \sim p$  B  $\sim q \rightarrow p$   
 C  $\sim p \rightarrow \sim q$  D  $\sim q \rightarrow \sim p$
62. The statement "Every integer greater than 2 is a sum of two prime numbers" is:  
 A theorem  
 b conjecture  
 C axiom D postulates
63. Which of these is the contrapositive of  $P \rightarrow Q$ ?  
 A  $\sim P \rightarrow \sim Q$  B  $Q \rightarrow P$   
 C  $\sim Q \rightarrow \sim P$  D  $P \leftrightarrow Q$
64. The statement "The sum of the interior angle of a triangle is  $180^\circ$ " is:  
 A converse b theorem  
 C axiom D conditional
65. Sum of interior angles of a triangle is:  
 A  $360^\circ$  B  $270^\circ$   
 C  $180^\circ$  D  $90^\circ$
66. If two polygons are similar, then:  
 a Their corresponding angles are equal.  
 B Their areas are equal.  
 C Their volumes are equal.  
 D Their corresponding sides are equal.
67. Volume of cylinder = \_\_\_\_\_  
 A  $r^2h$  B  $\pi r^2$   
 C  $\pi r^3$  d  $\pi r^2h$
68. If the volume of two similar solids is  $125\text{cm}^3$  and  $27\text{cm}^3$ , the ratio of their corresponding heights is \_\_\_\_\_:  
 A 3:5 b 5:3  
 C 25:9 D 9:25
69. Two cubes have volumes in the ratio 27:64. What's the edge ratio?  
 a 3:4 B 9:16  
 C 6:8 D 2:3
70. The exterior angle of regular pentagon is:  
 A  $40^\circ$  B  $45^\circ$   
 C  $60^\circ$  d  $72^\circ$
71. The total number of diagonals is a polygon with 9 sides is:  
 A 18 B 21 C 25 d 27
72. A regular polygon has an exterior angle of  $30^\circ$ . How many diagonals does the polygon have?  
 a 54 B 90 C 72 D 108
73. The graph of a quadratic function is always a:  
 A hyperbola B ellipse  
 C parabola D circle
74. Slope of the line  $y = 5x+3$  is:  
 A 3 B -3 C 5 D -5
75. The graph of  $y = x^3$ , cuts the x-axis at:  
 a  $x=0$  B  $x=1$   
 C  $x=-1$  D  $x=2$
76. Tangent is a line that touches a curve at \_\_\_\_\_.  
 a one point B two points  
 C three points  
 D four points
77. The graph of  $y = -x^2+5$  opens:  
 A upward b downward  
 C left side D right side
78.  $y = 5^x$  is \_\_\_\_\_ function.  
 A linear B quadratic  
 C cubic d exponential
79.  $y = -3x^3 + 7$  is \_\_\_\_\_ function.  
 A exponential b cubic  
 C linear  
 D reciprocal
80. The point of concurrency of perpendicular bisector of the sides of a triangle is called:  
 A centroid  
 b circumcentre  
 C orthocentre  
 D None of these
81. An equilateral triangle \_\_\_\_\_.  
 a can be isosceles  
 B can be right angled  
 C can be obtuse angled  
 D has each angle equal to  $50^\circ$
82. The line segment joining the midpoint of a side to its opposite vertex in a triangle is called \_\_\_\_\_.  
 a median  
 B perpendicular bisector  
 C angle bisector  
 D circle

83. The angle bisectors of a triangle intersect at \_\_\_\_\_.
- a one point B two points  
C three points  
D four points
84. Locus of all points equidistant from a fixed point is \_\_\_\_\_.
- a circle  
B perpendicular bisector  
C angle bisector  
D parallel lines
85. Locus of points equidistant from a fixed line is/are \_\_\_\_\_.
- A circle  
B perpendicular bisector  
C angle bisector  
d parallel lines
86. Locus of points equidistant from two intersecting lines is \_\_\_\_\_.
- A circle  
B perpendicular bisector  
C angle bisector  
D parallel lines
87. In class interval 15 – 30, the upper class limit is: A 15 b 30 C 20 D 10
88. The number of times a value occurs in a data is called:
- a frequency  
B relative frequency  
C class limit  
D class boundaries
89. Frequency polygon is also drawn / constructed by using:
- a histogram  
B bar graph  
C class boundaries  
D class limit
90. Measure of central tendency is used to find out the \_\_\_\_\_ of a data set.
- A class boundaries  
B cumulative frequency  
C middle or centre value  
D frequency

91. In a data the values which appears or occurs most often is called:
- A mean B median  
C mode D range
92. Find the mode of the given data: 2, 5, 8, 9, 0, 1, 3, 7 and 10.
- A 5 B 7 C 0  
d no mode
93. Find the median of the given data: 110, 125, 122, 130, 124, 127 and 120.
- a 124 B 120  
C 125 D 127
94. Who is known as father of probability?
- A Pierre de Fermat  
b Girolamo Cardano  
C Blaise pascal  
D Daniel Bernoulli
95. Each element of the sample space is called:
- A event B experiment  
C sample point  
D outcomes
96. Which one tells us how often a specific event occurs relative to be total number of frequency event or trials?
- A expected frequency  
B sum of relative frequency  
C relative frequency  
D frequency
97. The sum of all expected frequencies is equal to the fixed number of:
- a trials  
B relative frequencies  
C outcomes D events
98. The sum of the probability of an event "A" and the probability of an event not occurring "A" is always:
- A 0 b 1 C 2 D 3

99. An event which will probably occur. it has greater chance to occur is called:
- A equally likely event  
b likely event  
C unlikely event  
D certain event
100. Find out the total number of possible sample space when 4 dice are rolled:
- A  $6^2$  B  $6^3$  C  $6^4$  D  $6^6$

**Subjective Type  
(Short Questions)**

1. If  $a = \frac{3}{2}$ ,  $b = \frac{5}{3}$  and  $c = \frac{7}{5}$  then verify that:  $(a+b)c = ac+bc$
- Ans. See Pg. No. 10
2. Is 0 a rational number? Explain.
- Ans. See Pg. No. 11
3. State trichotomy property of real numbers.
- Ans. See Pg. No. 11
4. Simplify:  $\frac{6(3)^{n+2}}{3^{n+1} - 3^n}$
- Ans. See Pg. No. 11
5. The sum of three consecutive odd integers is 51. Find the three integers.
- Ans. See Pg. No. 11
6. Express  $\sqrt{72}$  in simplest radical form.
- Ans. See Pg. No. 8
7. Simplify:  $\frac{5^{n+3} - 6.5^{n+1}}{9 \times 5^n - 4 \times 5^n}$
- Ans. See Pg. No. 6
8. What is the decimal representation of  $\frac{2}{5}$ ?
- Ans. See Pg. No. 8

9. Express 734 in scientific notation.  
Ans. See Pg. No. 18
10. Express  $\log_4 1024 = 5$  in exponential form.  
Ans. See Pg. No. 19
11. Find the value of x:  
 $\log x = -3.434$   
Ans. See Pg. No. 15
12. Find the value of the following with the help of logarithm table:  
 $3.68 \times 4.21$   
**5.234**  
Ans. See Pg. No. 16
13. Define scientific notation.  
Ans. See Pg. No. 17
14. What is the logarithm of 100000 in base 10?  
Ans. See Pg. No. 17
15. Write the product rule of logarithms.  
Ans. See Pg. No. 18
16. Evaluate  $\log_{10}(10^{-3})$ .  
Ans. See Pg. No. 18
17. Write the following sets in set builder notation:  
 $\{1, 4, 9, 16, 25, 36, \dots, 484\}$   
Ans. See Pg. No. 21
18. What is the number of elements of the power set of each of the following sets?  
 $\{1, 2, 3, 4, 5, 6, 7\}$   
Ans. See Pg. No. 21
19. Write down the power set of each of the following sets:  $\{9, 11\}$   
Ans. See Pg. No. 21
20. In a class of 55 students, 34 like to play cricket and 30 like to play hockey. Also each student likes to play at least one of the two games. How many students like to play both games?  
Ans. See Pg. No. 22
21. For  $A = \{1, 2, 3, 4\}$ , find the following relations in A. State the domain and range of each relation.  
Ans. See Pg. No. 23
22. Consider the function defined by  $f(x) = 5x + 2$ . If  $f(x) = 32$ , find the x value.  
Ans. See Pg. No. 24
23. Define a set. Give one example.  
Ans. See Pg. No. 24
24. List the elements of the set:  $A = \{x \in \mathbb{N} \mid x < 5\}$   
Ans. See Pg. No. 24
25. Factorize by identifying common factors.  
 $3a^2b - 9ab^2 + 15ab$   
Ans. See Pg. No. 34
26. Factorize:  $x^2 + 7x + 10$   
Ans. See Pg. No. 35
27. Find HCF by factorization method:  
 $21x^2y, 35xy^2$   
Ans. See Pg. No. 36
28. Find LCM of the following expressions by using prime factorization method.  
 $x^4 - 16, x^3 - 4x$   
Ans. See Pg. No. 37
29. Find the square root of the following polynomials by factorization method:  
 $9x^2 + 12x + 4$   
Ans. See Pg. No. 38
30. In structural engineering, the deflection  $Y(x)$  of a beam is given by:  
 $Y(x) = 2x^2 - 8x + 6$   
Ans. See Pg. No. 39
31. Factorize by grouping:  
 $x^3 + 6x^2 + x + 6$   
Ans. See Pg. No. 40
32. Find the square root of  $(x^2 - 4x + 4)$   
Ans. See Pg. No. 41
33. Solve and represent the solution on a real line.  
 $2 = 7(2x+4) + 12x$   
Ans. See Pg. No. 44
34. Solve each inequality and represent the solution on a real line.  
 $x - 6 \leq -2$   
Ans. See Pg. No. 45
35. Shade the solution region for the following linear inequalities in xy-plane:  $2x + y \leq 6$   
Ans. See Pg. No. 46
36. Solve:  $5x + 7 = 2x + 13$   
Ans. See Pg. No. 49
37. Graph  $x + y \leq 4$ . Name a point in the solution region.  
Ans. See Pg. No. 49
38. Is the point (1, 3) a solution of inequality  $2x + y \leq 6$ ?  
Ans. See Pg. No. 50
39. Write 2 inequalities that form a feasible region in the first quadrant.  
Ans. See Pg. No. 50
40. Give an example of linear inequalities in two variables.  
Ans. See Pg. No. 50
41. Find in which quadrant the following angles lie. Write a co-terminal angle for each:  $135^\circ$   
Ans. See Pg. No. 56
42. Convert the following into degrees, minutes and seconds.  $123.456^\circ$   
Ans. See Pg. No. 57
43. If the central angle of a sector is  $60^\circ$  and the radius of the circle is 12 cm, find the area of the sector and the percentage of the total area of the circle it represents.  
Ans. See Pg. No. 57

44. Find the percentage of the area of sector subtending an angle  $\frac{\pi}{8}$  radians.  
Ans. See Pg. No. 58
45. If  $\cos\theta = \frac{5}{13}$ , find  $\sin\theta$  assuming  $\theta$  is in Quadrant I.  
Ans. See Pg. No. 66
46. A ladder leans against a wall forming a  $75^\circ$  angle with the ground. If the ladder is 10 m long, how high does it reach?  
Ans. See Pg. No. 66
47. State the quadrant in which the terminal side of  $300^\circ$  lies.  
Ans. See Pg. No. 67
48. From a point on the ground, the angle of elevation to the top of a 30 m high building is  $28^\circ$ . How far is the point from the base of the building?  
Ans. See Pg. No. 70
49. Find the distance between the points: A(6, 7), B(0, -2)  
Ans. See Pg. No. 71
50. Find the slope and inclination of the line joining the points: (3, -2); (2, 7)  
Ans. See Pg. No. 73
51. Using slopes, show that the triangle with its vertices A(6,1), B(2,7) and C(-6,-7) is a right triangle.  
Ans. See Pg. No. 74
52. The start and end points of a race track are given by coordinates (3,9) and (9,13). What is the midpoint of the track?  
Ans. See Pg. No. 75
53. What is the midpoint between (1,7) and (3,-1)?  
Ans. See Pg. No. 76
54. What is the slope of the line  $3x+2y=6$ ?  
Ans. See Pg. No. 77
55. Find the equation of line perpendicular to x-axis through (2, 3)  
Ans. See Pg. No. 77
56. A drone flies from point A(1,2) to B(5, 6). How far does it travel?  
Ans. See Pg. No. 77
57. If a, b and c are non-zero real numbers, prove that:  $\frac{a}{b} \cdot \frac{c}{d} = \frac{ac}{bd}$   
Ans. See Pg. No. 88
58. The sum of the angles in a triangle is  $180^\circ$ .  
Ans. See Pg. No. 85
59. Prove that for any two non-empty sets A and B,  $(A \cap B)' = A' \cup B'$ .  
Ans. See Pg. No. 88
60. Suppose x is an integer. If x is odd, then  $7x + 5$  is even.  
Ans. See Pg. No. 87
61. What is the importance of logical reasoning in mathematical proofs? Give an example to illustrate your point.  
Ans. See Pg. No. 85
62. Differentiate between a Mathematical Statement and its proof. Give two examples.  
Ans. See Pg. No. 84
63. Is the following argument deductive or inductive? "All humans are mortal. Socrates is human. Therefore, Socrates is mortal."  
Ans. See Pg. No. 82
64. Use a truth table to show the truth value of  $P \rightarrow Q$  for all values.  
Ans. See Pg. No. 83
65. Find the ratio of the areas of similar figures if the ratio of their corresponding lengths are: 2:7  
Ans. See Pg. No. 91
66. The areas of two similar triangles are  $144\text{cm}^2$  and  $81\text{cm}^2$ . If the base of the large triangle is 30cm, find the corresponding base of the smaller triangle?  
Ans. See Pg. No. 92
67. Calculate the measure of each interior angle of a regular hexagon.  
Ans. See Pg. No. 93
68. A rectangular floor is 12m by 15m. How many square tiles, each 1m by 1m, are needed to cover the floor?  
Ans. See Pg. No. 93
69. What is a regular polygon?  
Ans. See Pg. No. 94
70. Why are scale models considered similar solids?  
Ans. See Pg. No. 95

71. Two cubes are similar. Edge ratio = 2:5. Volume ratio = ?  
Ans. See Pg. No. 95
72. A window has a trapezoidal shape with parallel sides of 3m and 1.5m and a height of 2m. Find the area of the window.  
Ans. See Pg. No. 94
73. What is a function?  
Ans. See Pg. No. 103
74. What does the graph of  $y = x^2$  look like?  
Ans. See Pg. No. 103
75. What is exponential decay?  
Ans. See Pg. No. 103
76. What does the graph of  $y = e^{-x}$  show?  
Ans. See Pg. No. 104
77. Plot the graph of  $y = \frac{1}{2}(x+4)(x-1)(x-3)$  from -5 to 4.  
Ans. See Pg. No. 106
78. Plot the graph of the following functions:  
 $y = 3^{-x}$  for  $x$  from -2 to 4  
Ans. See Pg. No. 104
79. The value of a car depreciates according to the function  $V(t) = 25000 \cdot (0.85)^t$ , where  $t$  is the number of years after purchase. Find the value of the car after 4 years.  
Ans. See Pg. No. 104
80. Construct a locus of point 2.2cm from line segment CD of measure 5.7cm.  
Ans. See Pg. No. 111
81. Define a perpendicular bisector.  
Ans. See Pg. No. 113
82. Define an angle bisector.  
Ans. See Pg. No. 113
83. What is a locus?  
Ans. See Pg. No. 113
84. Construct a right angled triangle with measures of sides 6cm, 8cm and 10cm.  
Ans. See Pg. No. 115
85. Construct a triangle with  $m\angle D = 73^\circ$ ,  $m\angle E = 42^\circ$  and  $m\angle F = 54^\circ$ .  
Ans. See Pg. No. 115
86. Where do the altitudes of a triangle meet?  
Ans. See Pg. No. 113
87. Find the arithmetic mean in each of the following: 12, 18, 19, 0, -19, -18, -12  
Ans. See Pg. No. 118
88. The arithmetic mean of 45 numbers is 80. Find their sum.  
Ans. See Pg. No. 120
89. What is a frequency distribution?  
Ans. See Pg. No. 121
90. Why is information handling important?  
Ans. See Pg. No. 121
91. Give a real-life example of data handling.  
Ans. See Pg. No. 121
92. Following are the heights in (inches) of 12 students. Find the median height.  
55, 53, 54, 58, 60, 61, 62, 56, 57, 52, 51, 63.  
Ans. See Pg. No. 118
93. Explain how to draw a histogram.  
Ans. See Pg. No. 121
94. Arshad rolls a dice, with sides labelled L, M, N, O, P, U. What is the probability that the dice lands on consonant?  
Ans. See Pg. No. 128
95. Aslam rolled a dice. What is the probability of getting the numbers 3 or 4? Also find the probability of not getting the numbers 3 or 4.  
Ans. See Pg. No. 129
96. What is the expectation of a person who is to get Rs.120 if he obtains at least 2 heads in single toss of three coins?  
Ans. See Pg. No. 131
97. What is relative frequency? Write its formula.  
Ans. See Pg. No. 133
98. A spinner shows red 30 times out of 150 spins. What is the relative frequency of red?  
Ans. See Pg. No. 133
99. What is the probability of NOT drawing a red card from a deck of 52 cards?  
Ans. See Pg. No. 133
100. How is expected frequency used in business?  
Ans. See Pg. No. 134

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