



Name:

Class: IX

Subject: MATHS

Date:

Invigilator's sign:

Session: 2021-22

Roll

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No

SET A

SUBJECT CODE: 041

Time allowed : 2 Hours

Maximum Marks: 40

- Please check that this question paper contains 4 printed pages.
- The candidate should write code number given on the right hand side of the question paper on the title page of the answer book.
- Please check that this question paper contains 27 questions.
- 15 minutes is allotted time to read this question paper. The students will read the question paper only and will not write any answer on the answer-book during this period.

General Instructions:

- 1) All questions are compulsory.
- 2) Marks are indicated against each question.
- 3) Question numbers Q1-Q20 carry 1 mark each.
- 4) Question numbers Q21-Q23 carry 2 marks each.
- 5) Question numbers Q24-Q26 carry 3 marks each.
- 6) Question numbers Q27 carries 5 marks.

Section AQ1. $\frac{1}{\sqrt{9}-\sqrt{8}}$ is equal to

(a) $\frac{1}{2}(3 - 2\sqrt{2})$

(b) $3 - 2\sqrt{2}$

(c) $3 + 2\sqrt{2}$

(d) $\frac{1}{3-2\sqrt{2}}$

Q2. The product of any two irrational numbers is

(a) always an irrational number

(b) always a rational number

(c) always an integer

(d) sometimes rational, sometimes irrational

Q3. Which of the following is irrational?

- (a) $\sqrt{\frac{16}{4}}$ (b) $\sqrt{28}$ (c) $\sqrt{225}$ (d) $\frac{\sqrt{12}}{\sqrt{3}}$

Q4. Value of $\sqrt[4]{(81)^{-2}}$ is

- (a) $\frac{1}{3}$ (b) $\frac{1}{9}$ (c) $\frac{1}{81}$ (d) 9

Q5. Value of x, when $2^{x+4} \times 3^{x+1} = 288$ is

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

Q6. If $(x - \frac{1}{x})^2 = x^2 + y + \frac{1}{x^2}$, then the value of y is

- (a) -2 (b) 2 (c) 2x (d) -2x

Q7. Which of the following is a polynomial with variable x?

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

Q8. If one factor of $5 + 8x - 4x^2$ is $(2x + 1)$, then the second factor is

- (a) $(5x + 2)$ (b) $(2x - 5)$ (c) $(5 - 2x)$ (d) $-(5 + 2x)$

Q9. If $x^2 - x - 42 = (x + k)(x + 6)$, then the value of k is

- (a) 6 (b) -6 (c) 7 (d) -7

Q10. The point whose abscissa is -3 and ordinate is 2 lies in

- (a) first quadrant (b) second quadrant
(c) third quadrant (d) fourth quadrant

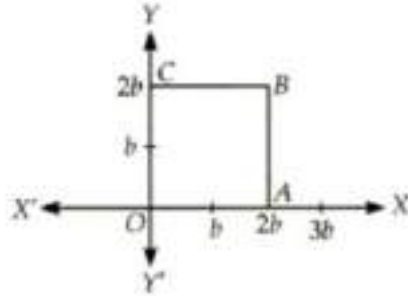
Q11. Point (-2,0)

- (a) on the x- axis (b) in the second quadrant
(c) on the y- axis (d) in the fourth quadrant

Q12. If $a > 0$ and $b < 0$, then the point P(a,b) lies in

- (a) first quadrant (b) second quadrant (c) third quadrant (d) fourth quadrant

Q13. If the side of the square OABC is $2b$ units, then coordinates of B are

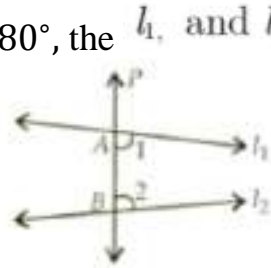


- (a) $(2b, 0)$ (b) $(0, 2b)$ (c) $(2b, 2b)$ (d) $(0, 0)$

Q14. Axioms are assumed:

- (a) universal truths in all branches of mathematics (b) theorems
(c) universal truths specific to geometry (d) definitions

Q15. In the given figure, if $\angle 1 + \angle 2 < 180^\circ$, the l_1 and l_2 will eventually meet at



- (a) right side of AB (b) left side of AB
(c) either side of AB (d) will never meet

Q16. In the given figure, $AC = DC$ and $CB = CE$. Using an Euclid's axiom, we have



- (a) $AB = 2DE$ (b) $AB = DE$ (c) $AD = BE$ (d) $BC = CA$

Q17. A die is thrown 260 times. Prime numbers appeared on the upper face 39 times. If a die is thrown at random, what is the probability of getting a prime number?

- (a) $\frac{3}{2}$ (b) $\frac{2}{3}$ (c) $\frac{3}{20}$ (d) $\frac{1}{20}$

Q18. In a cricket match, a batsman hits a boundary 16 times out of 30 balls he plays. Find the probability that he does not hit a boundary.

- (a) $\frac{7}{15}$ (b) $\frac{8}{15}$ (c) $\frac{2}{15}$ (d) $\frac{12}{15}$

Q19. Probability of an event can be:

(a) - 0.7

(b) $\frac{11}{9}$

(c) 1.001

(d) 0.6

Q20. A coin is tossed 40 times and it showed tail 24 times. The probability of getting a head was

(a) $\frac{2}{5}$

(b) $\frac{3}{5}$

(c) $\frac{1}{2}$

(d) $\frac{17}{40}$

Section B

Q21. Find the value of b: $\frac{\sqrt{2} + \sqrt{3}}{3\sqrt{2} - 2\sqrt{3}} = 2 - b\sqrt{6}$

Q22. Using suitable identity, evaluate $(103)^3$

Q23. It is known that $x + y = 10$ and that $x = z$. Show that $z + y = 10$.

Q24. Two dice are thrown simultaneously 500 times. Each time the sum of the two numbers appearing on their tops is noted and recorded as given in the following table:

Sum	Frequency
2	14
3	30
4	42
5	55
6	72
7	75
8	70
9	53
10	46
11	28
12	15

If the dice are thrown once more, what is the probability of getting a sum

(i) 3?

(ii) more than 10?

(iii) less than or equal to 5?

Q25. Plot the points A(1,-1) and B (4,5). Draw a line segment joining these points. Write the coordinates of a point on this line segment between the points A and B.

Q26. Represent $\sqrt{17}$ on a number line.

Q27.(a) Factorize : $6x^2 + 7x - 3$.

(2 marks)

(b) If $x + 1$ is a factor of $ax^3 + x^2 - 2x + 4a - 9$, find the value of a .

(3 marks)