



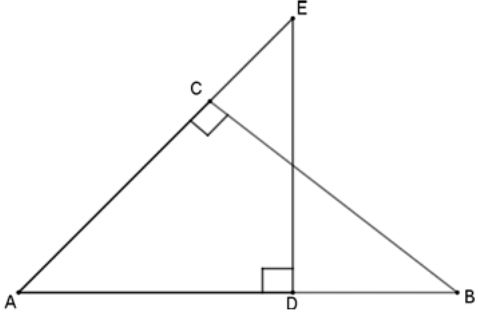
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INDIAN SCHOOL SALALAH**FIRST TERM EXAMINATION – SEPTEMBER 2025****Class: X****MATHEMATICS (041)****Date: 22/09/2025****Time: 3 hours****Maximum Marks: 80****General Instructions:**

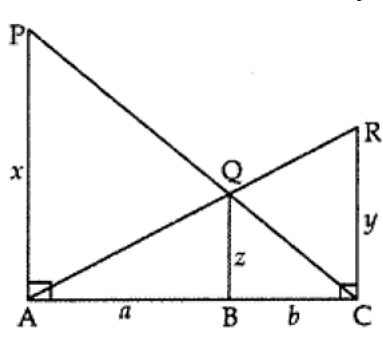
- This Question Paper has 5 Sections A, B, C, D and E.
- Section A has 20 MCQs carrying 1 mark each
- Section B has 5 questions carrying 02 marks each.
- Section C has 6 questions carrying 03 marks each.
- Section D has 4 questions carrying 05 marks each.
- Section E has 3 case based integrated units of assessment (04 marks each) with sub- parts of the values of 1, 1 and 2 marks each respectively.
- All Questions are compulsory. However, an internal choice in 2 Qs of 5 marks, 2 Qs of 3 marks and 2 Questions of 2 marks has been provided. An internal choice has been provided in the 2marks questions of Section E
- Draw neat figures wherever required. Take $\pi = 22/7$ wherever required if not stated.

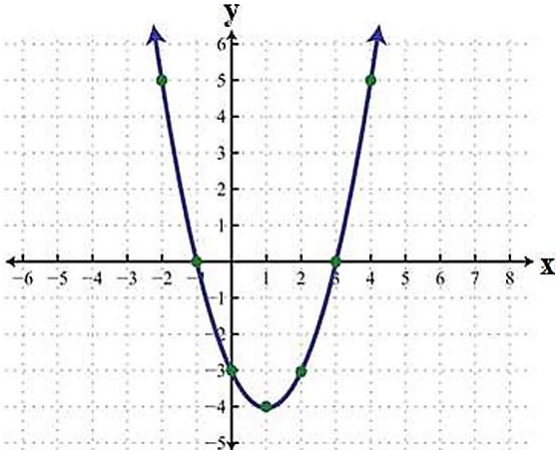
NO	SECTION A	MARKS
1	LCM of two numbers 'p' and 'q' where 'q' is a multiple of 'p' is: (a) p (b) q (c) pq (d) 1	1
2	If one of the zeroes of the quadratic polynomial $(m - 2)x^2 + mx + 2$ is -2 , then the value of m is (a) 3 (b) -1 (c) 0 (d) 1	1
3	If α, β are the zeroes of a polynomial $p(x) = x^2 + x - 1$, then $\frac{1}{\alpha} + \frac{1}{\beta}$ is: (a) 0 (b) -1 (c) 1 (d) -2	1
4	For what value of k, do the equations $2x - y + 3 = 0$ and $6x - ky + 9 = 0$ represent coincident lines? (a) -2 (b) 5 (c) 0 (d) 3	1
5	The pair of equations $3x - 5y = 7$ and $-6x + 10y = 7$ have (a) a unique solution (b) infinitely many solutions (c) no solution (d) two solutions	1

6	The nature of roots of the equation $9x^2 - 6x - 2 = 0$ is (a) No real roots (b) 2 equal real roots (c) 2 distinct real roots (d) More than 2 real roots	1
7	If one root of $x^2 - 7x + 10 = 0$ is 5, the other root is: (a) 2 (b) 3 (c) 1 (d) -3	1
8	If the 10th term of an AP is twice the 5th term, the common difference is equal to: (a) the first term (b) twice the first term (c) half the first term (d) 5 times the first term	1
9	The sum of the first n terms of an AP is $2n^2 + 3n$. The 9th term is: (a) 14 (b) 27 (c) 17 (d) 37	1
10	A sum of 15 terms of an AP is 345. If the first term is 5, then the last term is: (a) 40 (b) 41 (c) 43 (d) 52	1
11	The distance of the point (3,4) from the origin is: (a) 7 (b) 12 (c) 5 (d) 0	1
12	If $\left(\frac{a}{3}, 4\right)$ is the mid-point of the segment joining the points P(-6, 5) and R(-2, 3), then the value of 'a' is (a) -12 (b) 5 (c) -17 (d) -8	1
13	In the given figure, $\triangle BCA$ is similar to  (a) $\triangle AED$ (b) $\triangle EDA$ (c) $\triangle ACB$ (d) $\triangle ADE$	1
14	In $\triangle ABC$, $AB = AC$ and $\angle B = 70^\circ$. The value of $\angle A$ is: (a) 70° (b) 50° (c) 40° (d) 35°	1
15	A class has class mark 27 and class size 6. The upper limit of the class is: (a) 29 (b) 30 (c) 35 (d) 28	1
16	If the mean of a data is 24 and the median is 26, the mode is: (a) 50 (b) 25 (c) 35 (d) 30	1

17	A die is rolled once. The probability of getting a prime number or an odd number is: (a) $\frac{2}{3}$ (b) $\frac{1}{2}$ (c) $\frac{1}{3}$ (d) $\frac{5}{6}$	1
18	A card is drawn from a well-shuffled deck. Probability that it is neither a red card nor a king: (a) $\frac{1}{13}$ (b) $\frac{1}{2}$ (c) $\frac{6}{13}$ (d) $\frac{1}{26}$	1
	In question numbers 19 and 20, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option. (a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A) (b) Both assertion (A) and reason (R) are true and reason (R) is not the correct explanation of assertion (A) (c) Assertion (A) is true but reason (R) is false. (d) Assertion (A) is false but reason (R) is true.	
19	Assertion (A): If two numbers are co-prime, their LCM is equal to the product of the numbers. Reason (R): Co-prime numbers have no common factor other than 1.	1
20	Assertion(A): If the pair of lines are coincident, then we say that pair of lines is consistent and it has a unique solution. Reason(R): If the pair of lines are parallel, then the pairs have no solution and is called inconsistent pair of equations.	1
	SECTION B	
21	Three bells toll at intervals of 9, 12, 15 minutes respectively. If they start tolling together, after what time will they next toll together? OR Check whether 6^n can end with the digit 0 for any natural number n.	2
22	If α and β are the zeroes of the polynomial x^2+6x+9 , then form a polynomial whose zeroes are $-\alpha$ and $-\beta$.	2
23	For what value of k , are the roots of the quadratic equation $3x^2+2kx+27=0$ real and equal.	2

24	Point A(− 1, y) and B(5, 7), where AB is the diameter of a circle whose centre is (2, −3y). Find the value of y. OR Find the fourth vertex of parallelogram ABCD whose three vertices are A(− 2, 3), B(6, 7) and C(8, 3).	2																		
25	Two dice are thrown at the same time, find the probability of : a) Getting a total of 9 or 11 b) Not getting the same number on the two dice.	2																		
SECTION C																				
26	Prove that $\sqrt{5}$ is irrational.	3																		
27	Solve $2x + 3y = 11$ and $2x - 4y = -24$ and hence find the value of ‘m’ for which $y = mx + 3$. OR For which values of a and b does the following pair of linear equations have an infinite number of solutions? $2x + 3y = 7$; $(a - b)x + (a + b)y = 3a + b - 2$	3																		
28	The sum of first n terms of an A.P. is $5n^2 + 3n$. If its m th term is 168, find the value of m . Also find the 20th term of this A.P. OR Find the sum of all natural numbers between 200 and 400 which are divisible by 7.	3																		
29	Prove that if a line is drawn parallel to one side of a triangle to intersect the other two sides in distinct points, the other two sides are divided in the same ratio.	3																		
30	Find the mode of the following data. <table border="1"><tr><td>Class Interval</td><td>0-10</td><td>10-20</td><td>20-30</td><td>30-40</td><td>40-50</td><td>50-60</td><td>60-70</td><td>70-80</td></tr><tr><td>Frequency</td><td>5</td><td>8</td><td>7</td><td>12</td><td>28</td><td>20</td><td>10</td><td>10</td></tr></table>	Class Interval	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	Frequency	5	8	7	12	28	20	10	10	3
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Frequency	5	8	7	12	28	20	10	10												

31	A box contains 75 discs which are numbered from 1 to 75. If one disc is drawn at random from the box, find the probability that it bears a) a two-digit number. b) a perfect square number. c) a number divisible by 5.	3																
	SECTION D																	
32	Draw the graph of $2x + y = 6$ and $2x - y + 2 = 0$. Shade the region bounded by these lines and x-axis. Find the area of the shaded region.	5																
33	A fast train takes 3 hours less than a slow train for a journey of 600 km. If the speed of the slow train is 10 km/h less than that of the fast train, find the speeds of the two trains. OR Speed of a boat in still water is 15 km/h. It goes 30 km upstream and returns back at the same point in 4 hours 30 minutes. Find the speed of the stream.	5																
34	Sides AB and AC and median AD of a triangle ABC are respectively proportional to sides PQ and PR and median PM of another triangle PQR. Show that $\triangle ABC \sim \triangle PQR$. OR In the given fig. PA, QB and RC each is perpendicular to AC such that $PA = x$, $RC = y$, $QB = z$, $AB = a$ and $BC = b$. Prove that $\frac{1}{x} + \frac{1}{y} = \frac{1}{z}$. 	5																
35	The mean of the following frequency distribution is 62.8 and the sum of all frequencies is 50. Compute the missing frequencies f_1 and f_2. <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"><tr><td>Class Intervals</td><td>0-20</td><td>20-40</td><td>40-60</td><td>60-80</td><td>80-100</td><td>100-120</td><td>Total</td></tr><tr><td>Frequency</td><td>5</td><td>f_1</td><td>10</td><td>f_2</td><td>7</td><td>8</td><td>50</td></tr></table>	Class Intervals	0-20	20-40	40-60	60-80	80-100	100-120	Total	Frequency	5	f_1	10	f_2	7	8	50	5
Class Intervals	0-20	20-40	40-60	60-80	80-100	100-120	Total											
Frequency	5	f_1	10	f_2	7	8	50											

	SECTION E	
36	Case Study.1 The below pictures are few natural examples of parabolic shape which is represented by a quadratic polynomial. A parabolic arch is an arch in the shape of a parabola. In structures, their curve represents an efficient method of load, and so can be found in bridges and in architecture in a variety of forms    Observe the above graph and answer the following questions: a) How many zeroes does the polynomial have? b) Write the zeroes of the given polynomial. c) (i) Write a quadratic polynomial representing the above graph. OR c) (ii) If α and β are zeroes of the polynomial $x^2 - a(x + 1) - b$ such that $(\alpha + 1)(\beta + 1) = 0$, find the value of b. 1 1 2	
37	Case Study.2 India is competitive manufacturing location due to the low cost of manpower and strong technical and engineering capabilities contributing to higher quality production runs. The production of TV sets in a factory increases uniformly by a fixed number every year. It produced 8500 sets in 6th year and 9700 in 12th year.	



Based on the above information, answer the following questions:

- Find the production during first year.
- Find the production during 8th year.
- (i) Find the total production during first 10 years.

1
1
2

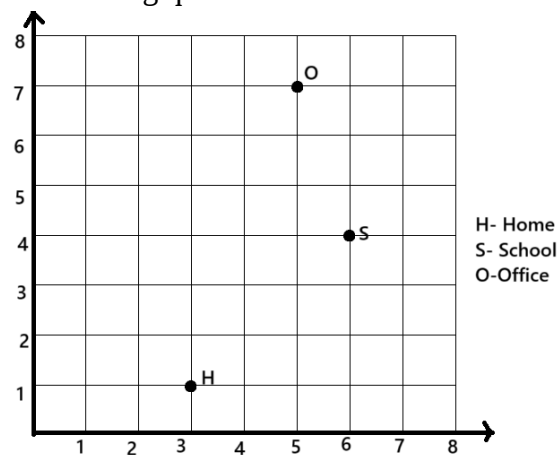
OR

- (ii) In which year, the production is 10700.

38

Case Study.3

Mr. Mohan has to reach his office every day at 7:00 a.m. On the way, he drops his son at school. The locations of Mohan's house, his son's school, and his office are represented on the given coordinate map. Using the information provided, answer the following questions.



Based on the above information, answer the following questions:

- Find the distance between Home and office.
- Find the coordinate of the midpoint of the line Segment joining the points O and H.
- (i) Find the coordinate of the point which divides the line segment joining the points H and S in the ratio 1:3.

1
1
2

OR

- (ii) Find the point on the x-axis which is equidistant from the points H and S.