Mathematics Part I (Algebra)

SSC Board Exam March 2027 – Practice Paper No. 2

Model Answer Paper

Time: 2 hours **Max. Marks: 40**

Model answers show one correct method; any other correct method gets full marks.

Q.1 (A) Four alternative answers are given for every sub-question. Select the correct alternative and write its alphabet with the sub-question number. **[4]**

(i) If the discriminant of a quadratic equation is −7, then the roots of the equation are .....

(A) real and equal (B) real and unequal

(C) not real (D) real and negative

Answer (1 mark)

(C) not real

If $b^2 - 4ac < 0$, the roots of the quadratic equation are not real. Here $b^2 - 4ac = -7 < 0$.

(ii) While solving the simultaneous equations $2x - 3y = 4$ and $x + y = 7$ by Cramer's rule, the value of D_x is .....

(A) 5 (B) 25

(C) 10 (D) −17

Answer (1 mark)

(B) 25

$D_x = \begin{vmatrix} 4 & -3 \\ 7 & 1 \end{vmatrix} = (4 \times 1) - (-3 \times 7) = 4 + 21 = 25$. ($D = 5$ and $D_y = 10$ are the other determinants; −17 comes from the sign error $4 - 21$.)

(iii) A die is rolled once. The probability that the number on the upper face is a factor of 6 is .....

(A) 1/2 (B) 2/3

(C) 1/3 (D) 5/6

Answer (1 mark)

(B) 2/3

S = {1, 2, 3, 4, 5, 6}, n(S) = 6. Factors of 6: A = {1, 2, 3, 6}, n(A) = 4.

P(A) = 4/6 = 2/3.

(iv) Which of the following sequences is an arithmetic progression?

(A) 2, 4, 8, 16, ... (B) 1, 4, 9, 16, ...

(C) 10, 7, 4, 1, ... (D) 1, 1/2, 1/3, 1/4, ...

Answer (1 mark)

(C) 10, 7, 4, 1, ...

The difference between consecutive terms is always −3 ($7 - 10 = 4 - 7 = 1 - 4 = -3$), so $d = -3$. In the other sequences the differences are not equal.

Q.1 (B) Solve the following sub-questions. **[4]**

(i) The point (x, −1) lies on the graph of the equation 2x − 3y = 11. Find the value of x.

Answer (1 mark)
Putting y = −1 in 2x − 3y = 11:
2x − 3(−1) = 11 ∴ 2x + 3 = 11 ∴ 2x = 8
∴ x = 4

(ii) The face value of a share is ₹10 and it is available at a premium of ₹35. Find its market value.

Answer (1 mark)
MV = FV + premium = 10 + 35 = ₹45
Market value of the share = ₹45

(iii) Check whether x = −2 is a root of the quadratic equation $x^2 - 3x - 10 = 0$.

Answer (1 mark)
Putting x = −2 in the left side:
$(-2)^2 - 3(-2) - 10 = 4 + 6 - 10 = 0$ = right side
∴ x = −2 is a root of $x^2 - 3x - 10 = 0$.

(iv) In a pie diagram showing the favourite sports of 500 students, the central angle of the sector for kabaddi is 72°. How many students chose kabaddi?

Answer (1 mark)
Number of students = (Central angle/360°) × Total = (72/360) × 500 = (1/5) × 500 = 100
100 students chose kabaddi.

Q.2 (A) Complete and write any two activities from the following. **[4]**

(i) The names of the seven days of a week are written on seven chits, and one chit is picked at random. Complete the activity to find the probability of each event.
Activity: S = {Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday} ∴ n(S) = ☐
Event A: the day comes just before or just after Sunday. A = {☐, ☐} ∴ n(A) = 2
P(A) = n(A)/n(S) = ☐
Event B: the day comes between Monday and Friday (excluding both). B = {Tuesday, ☐, ☐} ∴ n(B) = ☐
P(B) = n(B)/n(S) = ☐

Answer (2 marks)
n(S) = **7**
A = {**Saturday**, **Monday**} ∴ n(A) = 2
P(A) = n(A)/n(S) = **2/7**
B = {Tuesday, **Wednesday**, **Thursday**} ∴ n(B) = **3**
P(B) = n(B)/n(S) = **3/7**
Marking: n(S) = 7, A = {Saturday, Monday} and P(A) = 2/7 – 1 mark · B = {Tuesday, Wednesday, Thursday}, n(B) = 3 and P(B) = 3/7 – 1 mark
Examiner tip: The day just before Sunday is Saturday and the day just after it is Monday. 'Between Monday and Friday' does not include Monday and Friday themselves.

(ii) Complete the activity to find the nature of the roots of the equation $3x^2 - 8x + 5 = 0$.

Activity: Comparing with $ax^2 + bx + c = 0$, $a = 3$, $b = \square$, $c = \square$

$b^2 - 4ac = (\square)^2 - 4 \times 3 \times 5$

$= \square - 60$

$= \square$

Since $b^2 - 4ac$ $\square$ 0, the roots of the equation are $\square$.

Answer (2 marks)

$a = 3$, $b = \mathbf{-8}$, $c = \mathbf{5}$

$b^2 - 4ac = (\mathbf{-8})^2 - 4 \times 3 \times 5$

$= \mathbf{64} - 60$

$= \mathbf{4}$

Since $b^2 - 4ac > 0$, the roots of the equation are **real and unequal**.

(Indeed, $3x^2 - 8x + 5 = (x - 1)(3x - 5)$, so the roots are 1 and 5/3.)

Marking: $b = -8$, $c = 5$ and $b^2 - 4ac = 4$ – 1 mark · $4 > 0$, roots real and unequal – 1 mark

Examiner tip: Write b with its sign: $b = -8$, and $(-8)^2 = 64$, not -64.

(iii) Complete the activity to find the sum of the first 15 terms of the A.P. 6, 10, 14, ...

Activity: $a = 6$, $d = \square$, $n = 15$

$S_n = n/2\ [2a + (n - 1)d]$

$S_{15} = 15/2\ [2 \times 6 + (15 - 1) \times \square]$

$= 15/2\ [12 + \square]$

$= 15/2 \times \square$

$= \square$

Answer (2 marks)

$a = 6$, $d = \mathbf{4}$, $n = 15$

$S_{15} = 15/2\ [2 \times 6 + (15 - 1) \times \mathbf{4}]$

$= 15/2\ [12 + \mathbf{56}]$

$= 15/2 \times \mathbf{68}$

$= 15 \times 34 = \mathbf{510}$

Marking: $d = 4$ and $14 \times 4 = 56$ – 1 mark · $S_{15} = 510$ – 1 mark

Examiner tip: $d = t_2 - t_1 = 10 - 6 = 4$. Use $(n - 1) = 14$, not 15, inside the bracket.

Q.2 (B) Solve any four sub-questions. **[8]**

(i) Solve the simultaneous equations: $x/3 + y/4 = 4$; $x/2 - y/4 = 1$

Answer (2 marks)

$x/3 + y/4 = 4$ ... multiplying by 12: $4x + 3y = 48$ ...(I)

$x/2 - y/4 = 1$ ... multiplying by 4: $2x - y = 4$ ...(II)

Multiplying (II) by 3: $6x - 3y = 12$ ...(III)

Adding (I) and (III): $10x = 60 \therefore x = 6$

Substituting $x = 6$ in (II): $12 - y = 4 \therefore y = 8$

Solution: $(x, y) = (6, 8)$

Marking: Removing fractions to get $4x + 3y = 48$ and $2x - y = 4$ – 1 mark · $x = 6$, $y = 8$ – 1 mark

Examiner tip: Clear the fractions first by multiplying each equation by the LCM of its denominators. Check: $6/3 + 8/4 = 4$ ✓ and $6/2 - 8/4 = 1$ ✓.

(ii) Solve the quadratic equation by completing the square: $x^2 - 10x + 16 = 0$

Answer (2 marks)

$x^2 - 10x + 16 = 0$

$x^2 - 10x = -16$

Third term = $(1/2 \times \text{coefficient of } x)^2 = (1/2 \times -10)^2 = 25$

Adding 25 to both sides: $x^2 - 10x + 25 = -16 + 25$

$(x - 5)^2 = 9$

$x - 5 = 3$ or $x - 5 = -3$

$x = 8$ or $x = 2$

Roots: 8 and 2

Marking: Adding 25 and getting $(x - 5)^2 = 9$ – 1 mark · Both roots 8 and 2 – 1 mark

Examiner tip: The question names the method; solving by factorisation instead does not earn the method mark.

(iii) The taxable value of a school bag sold by a shop in Nagpur is ₹1250 and the rate of GST is 12%. Find the CGST, the SGST and the amount the customer pays for the bag.

Answer (2 marks)

GST = 12% of 1250 = 1250 × 12/100 = ₹150

CGST = SGST = 150 ÷ 2 = ₹75 each (rate 6% each)

Amount paid by customer = Taxable value + GST = 1250 + 150 = ₹1400

Marking: GST ₹150, CGST = SGST = ₹75 – 1 mark · Amount paid ₹1400 – 1 mark

Examiner tip: GST is charged on the taxable value and then split equally into CGST and SGST (6% + 6%). Do not take 12% for each.

(iv) Each letter of the word MAHARASHTRA is written on a separate card, and the 11 cards are mixed. One card is drawn at random. Find the probability that the card shows (a) the letter A (b) the letter R.

Answer (2 marks)

The word MAHARASHTRA has 11 letters ∴ n(S) = 11

(a) Event E: the card shows the letter A. A appears 4 times ∴ n(E) = 4

P(E) = 4/11

(b) Event F: the card shows the letter R. R appears 2 times ∴ n(F) = 2

P(F) = 2/11

Marking: n(S) = 11 and P(E) = 4/11 – 1 mark · P(F) = 2/11 – 1 mark

Examiner tip: Count every card, including repeated letters: n(S) is 11, not the 6 different letters.

(v) The weights of parcels received at a courier office in Nagpur on one day are given below. Find the mode of the weights.

Weight (kg)	0–5	5–10	10–15	15–20	20–25
No. of parcels	8	15	27	19	7

Answer (2 marks)

Maximum frequency is 27 ∴ modal class = 10–15

L = 10, $f_1 = 27$, $f_0 = 15$, $f_2 = 19$, h = 5

Mode = $L + [(f_1 - f_0)/(2f_1 - f_0 - f_2)] \times h$

$= 10 + [(27 - 15)/(54 - 15 - 19)] \times 5$

$= 10 + (12/20) \times 5$

= 10 + 3 = 13

Mode of the weights = 13 kg

Marking: Modal class and values of L, f_0, f_1, f_2, h – 1 mark · Mode = 13 kg – 1 mark

Examiner tip: f_0 is the frequency of the class before the modal class and f_2 of the class after it. Do not swap them.

Q.3 (A) Complete and write any one activity from the following. **[3]**

(i) Complete the activity to solve the simultaneous equations $2/x + 3/y = 2$ and $4/x - 9/y = -1$.

Activity: Let $1/x = m$ and $1/y = n$.

The equations become $2m + 3n = 2$ ...(I) and $4m - 9n = -1$ ...(II)

Multiplying (I) by 3: $6m + 9n =$ ☐ ...(III)

Adding (II) and (III): ☐$m = 5 \therefore m =$ ☐

Substituting m in (I): $2 \times$ ☐ $+ 3n = 2 \therefore n =$ ☐

$1/x = m \therefore x =$ ☐ and $1/y = n \therefore y =$ ☐

Answer (3 marks)

Multiplying (I) by 3: $6m + 9n =$ **6** ...(III)

Adding (II) and (III): **10**$m = 5 \therefore m =$ **1/2**

Substituting in (I): $2 \times$ **1/2** $+ 3n = 2 \therefore 1 + 3n = 2 \therefore n =$ **1/3**

$1/x = 1/2 \therefore x =$ **2** and $1/y = 1/3 \therefore y =$ **3**

Solution: (x, y) = (2, 3)

Check: $2/2 + 3/3 = 2$ ✓ and $4/2 - 9/3 = -1$ ✓

Marking: 6 and 10m = 5, m = 1/2 – 1 mark · n = 1/3 – 1 mark · x = 2, y = 3 – 1 mark

Examiner tip: After finding m and n, go back to x and y. Writing the answer as m = 1/2, n = 1/3 loses the last mark.

(ii) The monthly mobile data (in GB) used by 40 customers of a shop in Kolhapur is given below. Complete the activity to find the mean data used by the assumed mean method, taking A = 35.

Data (GB)	Class mark x_i	$d_i = x_i - A$	Frequency f_i	$f_i d_i$
10–20	15	−20	5	−100
20–30	25	☐	8	☐
30–40	35 → A	0	12	0
40–50	45	10	10	☐
50–60	55	20	5	100
			$\Sigma f_i = 40$	$\Sigma f_i d_i =$ ☐

Activity: $\bar{d} = \Sigma f_i d_i / \Sigma f_i =$ ☐ /40 = ☐

Mean $\bar{x} = A + \bar{d} = 35 +$ ☐ = ☐ GB

Answer (3 marks)

Data (GB)	x_i	d_i	f_i	$f_i d_i$
10–20	15	−20	5	−100
20–30	25	**−10**	8	**−80**
30–40	35	0	12	0
40–50	45	10	10	**100**
50–60	55	20	5	100
			40	**20**

$\Sigma f_i d_i = -100 - 80 + 0 + 100 + 100 =$ **20**

$\bar{d} =$ **20**/40 = **0.5**

Mean $\bar{x} = A + \bar{d} = 35 + \mathbf{0.5} = \mathbf{35.5}$ GB

Marking: $d_i = -10$ and $f_id_i = -80$, 100 – 1 mark · $\Sigma f_id_i = 20$ and $\bar{d} = 0.5$ – 1 mark · Mean = 35.5 GB – 1 mark

Examiner tip: Keep the minus signs in the d_i and f_id_i columns; a sign slip changes Σf_id_i completely.

Q.3 (B) Solve any two sub-questions. **[6]**

(i) The length of a rectangular vegetable plot in Nashik is 7 m more than its breadth, and its area is 228 m^2. Find the length and breadth of the plot.

Answer (3 marks)

Let the breadth be x m. Then the length = (x + 7) m.

Area = length × breadth ∴ $x(x + 7) = 228$

$x^2 + 7x - 228 = 0$

(Product = −228; 19 × (−12) = −228 and 19 − 12 = 7)

$x^2 + 19x - 12x - 228 = 0$

$x(x + 19) - 12(x + 19) = 0$

$(x + 19)(x - 12) = 0$

$x = -19$ or $x = 12$

Breadth cannot be negative ∴ x = 12

Breadth = 12 m and length = 12 + 7 = 19 m

Check: 19 × 12 = 228 ✓

Marking: Forming $x^2 + 7x - 228 = 0$ – 1 mark · Factorising and roots 12, −19 – 1 mark · Rejecting −19; breadth 12 m, length 19 m – 1 mark

Examiner tip: Give both dimensions with units. Many students stop at x = 12 and forget the length.

(ii) The 5th term of an A.P. is 26 and its 12th term is 61. Find the A.P. and its 20th term.

Answer (3 marks)

$t_n = a + (n - 1)d$

$t_5 = a + 4d = 26$ ...(I)

$t_{12} = a + 11d = 61$ ...(II)

Subtracting (I) from (II): $7d = 35$ ∴ d = 5

From (I): $a + 20 = 26$ ∴ a = 6

The A.P. is 6, 11, 16, 21, ...

$t_{20} = a + 19d = 6 + 19 \times 5 = 6 + 95 = 101$

Marking: Two equations $a + 4d = 26$ and $a + 11d = 61$ – 1 mark · d = 5, a = 6 and the A.P. – 1 mark · $t_{20} = 101$ – 1 mark

Examiner tip: $t_5 = a + 4d$, not $a + 5d$. Writing the A.P. (first few terms) is part of the answer.

(iii) Mrs. Deshpande sold 240 shares of face value ₹10 when the market value was ₹65 per share. The rate of brokerage is 0.5% and GST is 18% on brokerage. Find (a) the sale value of the shares (b) the brokerage and the GST on it (c) the amount she received.

Answer (3 marks)

(a) Sale value = Number of shares × MV = 240 × 65 = ₹15,600

(b) Brokerage = 0.5% of 15,600 = 15,600 × 0.5/100 = ₹78

GST on brokerage = 18% of 78 = 78 × 18/100 = ₹14.04

(c) On sale, brokerage and GST are deducted from the sale value.

Amount received = 15,600 − (78 + 14.04) = 15,600 − 92.04 = ₹15,507.96

Mrs. Deshpande received ₹15,507.96.

Marking: Sale value ₹15,600 – 1 mark · Brokerage ₹78 and GST ₹14.04 – 1 mark · Amount received ₹15,507.96 – 1 mark

Examiner tip: Brokerage is on the market value, not the face value. On selling, brokerage and GST are subtracted; on buying, they are added.

(iv) A box contains 30 tokens numbered 21 to 50. One token is drawn at random. Find the probability that the number on the token is (a) a multiple of 7 (b) a perfect square (c) a prime number.

Answer (3 marks)

S = {21, 22, 23, ..., 50} ∴ n(S) = 30

(a) Event A: multiple of 7. A = {21, 28, 35, 42, 49}, n(A) = 5

P(A) = 5/30 = 1/6

(b) Event B: perfect square. B = {25, 36, 49}, n(B) = 3

P(B) = 3/30 = 1/10

(c) Event C: prime number. C = {23, 29, 31, 37, 41, 43, 47}, n(C) = 7

P(C) = 7/30

Marking: n(S) = 30 and P(A) = 1/6 – 1 mark · P(B) = 1/10 – 1 mark · P(C) = 7/30 – 1 mark

Examiner tip: Numbers 21 to 50 make 50 − 21 + 1 = 30 tokens, not 29. 49 = 7 × 7 is not prime.

Q.4 Solve any two sub-questions. **[8]**

(i) At a stationery shop in Satara, Anuja bought 4 notebooks and 3 pens for ₹190, and Mihir bought 3 notebooks and 5 pens of the same kind for ₹170. Form simultaneous equations and find the price of one notebook and one pen using Cramer's rule.

Answer (4 marks)

Let the price of one notebook be ₹x and of one pen be ₹y.

4x + 3y = 190 ...(I)

3x + 5y = 170 ...(II)

$D = \begin{vmatrix} 4 & 3 \\ 3 & 5 \end{vmatrix} = (4 \times 5) - (3 \times 3) = 20 - 9 = 11$

$D_x = \begin{vmatrix} 190 & 3 \\ 170 & 5 \end{vmatrix} = (190 \times 5) - (3 \times 170) = 950 - 510 = 440$

$D_y = \begin{vmatrix} 4 & 190 \\ 3 & 170 \end{vmatrix} = (4 \times 170) - (190 \times 3) = 680 - 570 = 110$

$x = D_x/D = 440/11 = 40$

$y = D_y/D = 110/11 = 10$

Price of one notebook = ₹40 and price of one pen = ₹10

Check: 4(40) + 3(10) = 190 ✓ and 3(40) + 5(10) = 170 ✓

Marking: Forming both equations – 1 mark · D = 11 – 1 mark · D_x = 440 and D_y = 110 – 1 mark · x = 40, y = 10 with conclusion – 1 mark

Examiner tip: In D_x replace the x-column by the constants; in D_y replace the y-column. State the answer in words with ₹.

(ii) A rectangular painting 24 cm long and 16 cm wide is fixed in a frame of uniform width all around it. The area of the painting together with the frame is 560 cm^2. Find the width of the frame and the area of the frame alone.

Answer (4 marks)

Let the width of the frame be x cm.

Length with frame = (24 + 2x) cm, breadth with frame = (16 + 2x) cm

(24 + 2x)(16 + 2x) = 560

$384 + 48x + 32x + 4x^2 = 560$

$4x^2 + 80x - 176 = 0$

Dividing by 4: $x^2 + 20x - 44 = 0$

$x^2 + 22x - 2x - 44 = 0$

$x(x + 22) - 2(x + 22) = 0$

$(x + 22)(x - 2) = 0$

$x = -22$ or $x = 2$

Width cannot be negative $\therefore x = 2$

Width of the frame = 2 cm

Area of the frame alone = $560 - (24 \times 16) = 560 - 384 = 176$ cm^2

Check: $(24 + 4)(16 + 4) = 28 \times 20 = 560$ ✓

Marking: Forming $(24 + 2x)(16 + 2x) = 560$ – 1 mark · Reducing to $x^2 + 20x - 44 = 0$ – 1 mark · Factorising: $x = 2$ or -22 – 1 mark · Rejecting -22; width 2 cm and frame area 176 cm^2 – 1 mark

Examiner tip: The frame is on both sides, so add 2x (not x) to the length and to the breadth. Area of the frame = outer area − area of the painting.

(iii) A manufacturer in Nashik sold water purifiers to a wholesaler for a taxable value of ₹32,000. The wholesaler sold them to a retailer for a taxable value of ₹36,500, and the retailer sold them to a customer for a taxable value of ₹40,000. GST is 18% at every stage (all within Maharashtra).
(a) Find the GST payable by the wholesaler and by the retailer, and the CGST and SGST payable by each.
(b) Find the total amount paid by the customer.

Answer (4 marks)

Output tax of manufacturer = 18% of 32,000 = 32,000 × 18/100 = ₹5760 (this is the ITC of the wholesaler)

Output tax of wholesaler = 18% of 36,500 = ₹6570 (this is the ITC of the retailer)

Output tax of retailer = 18% of 40,000 = ₹7200

(a) GST payable by wholesaler = Output tax − ITC = 6570 − 5760 = ₹810

CGST = SGST = 810 ÷ 2 = ₹405 each

GST payable by retailer = 7200 − 6570 = ₹630

CGST = SGST = 630 ÷ 2 = ₹315 each

(b) Amount paid by customer = 40,000 + 7200 = ₹47,200

(Note: the government receives 5760 + 810 + 630 = ₹7200 in all, which is exactly the GST paid by the customer.)

Marking: Output taxes ₹5760, ₹6570, ₹7200 – 1 mark · Wholesaler: GST payable ₹810, CGST = SGST = ₹405 – 1 mark · Retailer: GST payable ₹630, CGST = SGST = ₹315 – 1 mark · Customer pays ₹47,200 – 1 mark

Examiner tip: Each trader pays only output tax minus input tax credit. The customer cannot claim ITC, so the customer bears the full ₹7200.

Q.5 Solve any one of the following sub-questions. **[3]**

(i) The daily steps (in thousands) of 60 morning walkers in a Thane park are given below. Draw a frequency polygon for the data without drawing a histogram, and write the class in which the largest number of walkers lies.

Daily steps (thousands)	2–4	4–6	6–8	8–10	10–12
No. of walkers	6	14	20	12	8

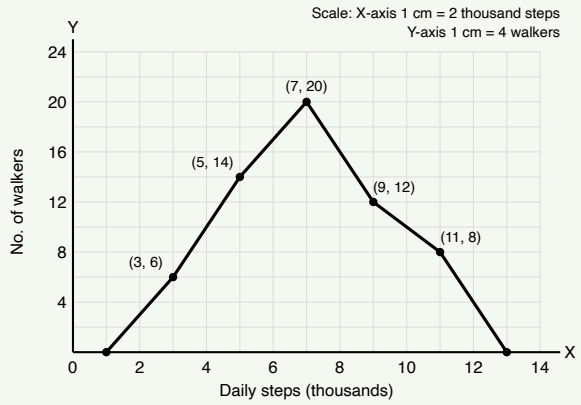
Answer (3 marks)

Class (thousand steps)	**Class mark**	**Frequency**	**Point**
0–2	1	0	(1, 0)
2–4	3	6	(3, 6)
4–6	5	14	(5, 14)
6–8	7	20	(7, 20)
8–10	9	12	(9, 12)
10–12	11	8	(11, 8)
12–14	13	0	(13, 0)

Plot the points (class mark, frequency) and join them in order with straight line segments. The classes 0–2 and 12–14 (frequency 0) are added at both ends so that the polygon closes on the X-axis (see figure).

Scale: X-axis 1 cm = 2 thousand steps; Y-axis 1 cm = 4 walkers

The largest number of walkers (20) lies in the class 6–8 thousand steps.



Marking: Table of class marks and points, including the two end classes with frequency 0 – 1 mark · Correct frequency polygon with scale – 1 mark · Class 6–8 (thousand steps) – 1 mark

Examiner tip: Plot frequencies against class marks, not class limits, and close the polygon on the X-axis at class marks 1 and 13.

(ii) Preparing for a cycle rally, Om rides 3 km on the first day, 5 km on the second day, 7 km on the third day, and so on. In how many days will he have ridden a total of 120 km, and how far will he ride on the last of these days?

Answer (3 marks)

Distances on successive days: 3, 5, 7, ... (km) form an A.P. with $a = 3$, $d = 2$, $S_n = 120$

$S_n = n/2\,[2a + (n - 1)d]$

$120 = n/2\,[6 + (n - 1) \times 2]$

$120 = n/2\,[2n + 4]$

$120 = n(n + 2)$

$n^2 + 2n - 120 = 0$

$(n + 12)(n - 10) = 0$

$n = -12$ or $n = 10$

Number of days cannot be negative $\therefore n = 10$

Last (10th) day: $t_{10} = a + 9d = 3 + 9 \times 2 = 21$

Om will have ridden 120 km in 10 days, and he rides 21 km on the 10th day.

Check: $S_{10} = 10/2\ (3 + 21) = 5 \times 24 = 120$ ✓

Marking: Forming $n^2 + 2n - 120 = 0$ – 1 mark · $n = 10$ (rejecting -12) – 1 mark · Last day $t_{10} = 21$ – 1 mark

Examiner tip: Here the total (S_n) is given and n is unknown, so you get a quadratic in n. Use t_n for the last day.

All the best for your exam!