Pair of Linear Equations in Two Variables Class 10 Important Questions

10 questions · 27 marks · no calculator · step-marked answers

Name _____ Date _____ Score / 27

- Original questions in the board paper's question types, from 1-mark MCQs to a case study. Try every question before you look at the answers.
- No calculator: as in the CBSE board exam, everything works by hand.
- Worked answers with step marks for 5 questions start after the questions. The other 5 open free on the chapter page with a free account (no card): the link is next to each one.
- Online, with more practice: cbsemathrevision.com/class-10/pair-of-linear-equations-in-two-variables

Section A · Multiple choice and assertion–reason (1 mark each)

1. **1 mark · Consistency and number of solutions**

The pair $2x + 3y = 7$ and $6x + ky = 21$ has infinitely many solutions when k equals

(a) 3 (b) 6

(c) 9 (d) -9

2. **1 mark · Elimination method**

The solution of $x + y = 14$ and $x - y = 4$ is

(a) $x = 9,\ y = 5$ (b) $x = 5,\ y = 9$

(c) $x = 10,\ y = 4$ (d) $x = 8,\ y = 6$

3. **1 mark · Consistency and number of solutions**

In the following question, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option.

Assertion (A): The lines $3x - y = 5$ and $6x - 2y = 7$ are parallel.

Reason (R): Lines $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ are parallel when $\frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$.

(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 but 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.

Section B · Short answer (2 marks each)

4. **2 marks · Substitution method**

Solve by substitution: $2x + y = 11$ and $x - 3y = -5$.

5. **2 marks · Consistency and number of solutions**

Find all values of k for which the lines $kx + 4y = 8$ and $3x + 2y = 5$ meet in exactly one point.

Section C · Short answer (3 marks each)

6. **3 marks · Elimination method**

Solve by elimination: $3x + 4y = 10$ and $2x - 2y = 2$.

7. **3 marks · Situational problems**

The digits of a two-digit number add up to 11. Reversing the digits gives a number 27 more than the original. Find the number.

Section D · Long answer (5 marks each)

8. **5 marks · Situational problems**

A gym charges a one-time joining fee plus a fixed fee each month. Ananya paid ₹4200 in all for her first 5 months and Kabir paid ₹6600 in all for his first 9 months. Find the joining fee and the monthly fee. How much does a member pay in all for the first 12 months?

9. **5 marks · Graphical method of solution**

Solve graphically: $x + y = 5$ and $2x - y = 4$. Find the vertices of the triangle formed by the two lines and the y-axis, and the area of this triangle.

Section E · Case study (4 marks)

10. **4 marks · Situational problems**

School concert tickets. For a school concert, adult tickets cost ₹x each and child tickets ₹y each. One family paid ₹ 1100 for 2 adult and 3 child tickets; another paid ₹1400 for 3 adult and 2 child tickets.

i. Write the two equations described. *[1 mark]*

ii. Without finding x and y separately, find the cost of one adult and one child ticket together. *[1 mark]*

iii. Find the price of each kind of ticket. *[2 marks]*

Answers and worked solutions

Question 1 — 1 mark

Need $\frac{2}{6} = \frac{3}{k} = \frac{7}{21}$, i.e. $\frac{3}{k} = \frac{1}{3}$, so $k = 9$ **A1**

Correct option: (c) 9

Question 2 — 1 mark

Worked answer: free with a free account (no card) on the chapter page: cbsemathrevision.com/class-10/pair-of-linear-equations-in-two-variables#iq-2

Question 3 — 1 mark

Worked answer: free with a free account (no card) on the chapter page: cbsemathrevision.com/class-10/pair-of-linear-equations-in-two-variables#iq-3

Question 4 — 2 marks

Answer: $x = 4$, $y = 3$

From the second equation $x = 3y - 5$; then

$2(3y - 5) + y = 11 \Rightarrow 7y = 21$ **M1**

$y = 3$ and $x = 3(3) - 5 = 4$ **A1**

Question 5 — 2 marks

Worked answer: free with a free account (no card) on the chapter page: cbsemathrevision.com/class-10/pair-of-linear-equations-in-two-variables#iq-5

Question 6 — 3 marks

Answer: $x = 2$, $y = 1$

Multiply the second equation by 2: $4x - 4y = 4$; add to the first: $7x = 14$ **M1**

$x = 2$ **A1**

$2(2) - 2y = 2 \Rightarrow y = 1$ **A1**

Question 7 — 3 marks

Worked answer: free with a free account (no card) on the chapter page: cbsemathrevision.com/class-10/pair-of-linear-equations-in-two-varial

Question 8 — 5 marks

Answer: Joining fee ₹1200, monthly fee ₹600; ₹8400

Joining fee ₹x, monthly fee ₹y: $x + 5y = 4200$ and $x + 9y = 6600$ **M1**

Subtracting: $4y = 2400$ **M1**

$y = 600$ **A1**

$x = 4200 - 3000 = 1200$ **A1**

First 12 months: $1200 + 12 \times 600 = ₹8400$ **A1**

Question 9 — 5 marks

Worked answer: free with a free account (no card) on the chapter page: cbsemathrevision.com/class-10/pair-of-linear-equations-in-two-varial

Question 10 — 4 marks

i. $2x + 3y = 1100$ and $3x + 2y = 1400$ **A1**

ii. Adding: $5x + 5y = 2500 \Rightarrow x + y = 500$, so ₹ 500 **A1**

iii. Subtracting the first equation from the second: $x - y = 300$ **M1**
With $x + y = 500$: $x = 400$, $y = 100$: adult ₹400, child ₹100 **A1**

More on this chapter, free: revision notes, a Route to 95 and practice with instant feedback at cbsemathrevision.com/class-10/pair-of-linear-equations-in-two-variables
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