

★ Class 9 Maths Chapter 2 – Important Questions

📖 Introduction to Linear Polynomials

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These questions focus on the key Chapter 2 concepts: **linear polynomials, their values and zeros, patterns, linear relationships, graphs, slope and y-intercept, and applications of linear relationships.**

● A. Very Short Answer Questions

1. What is a polynomial?
 2. What is a linear polynomial?
 3. What is the degree of a non-zero linear polynomial?
 4. Write the general form of a linear polynomial.
 5. Identify the coefficient of x in $7x + 5$.
 6. Identify the constant term in $-3x + 8$.
 7. Is $5x + 2$ a linear polynomial? Give a reason.
 8. Is $x^2 + 3x + 2$ a linear polynomial? Give a reason.
 9. Find the value of $3x + 5$ when $x = 2$.
 10. Find the value of $7 - 2x$ when $x = 3$.
 11. What is meant by a zero of a polynomial?
 12. Find the zero of $x - 5$.
 13. Find the zero of $2x + 6$.
 14. What is the graph of a linear relationship generally represented by?
 15. What does the slope of a straight-line graph represent?
 16. What does the y-intercept represent?
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● B. Linear Polynomials

17. Identify the linear polynomials from the following:

- a) $3x + 7$
- b) $x^2 + 4$
- c) $-5x + 1$
- d) 7
- e) $2x^3 - 1$

18. Write three different linear polynomials.

19. Find the value of $5x - 3$ for:

- a) $x = 0$
- b) $x = 2$
- c) $x = -1$

20. Find the value of $4 - 3x$ when $x = -2$.

21. Find the value of $2x + 7$ when $x = 5$.

22. If $p(x) = 4x - 9$, find $p(3)$.

23. If $p(x) = 7 - 2x$, find $p(-4)$.

24. Find the value of $ax + b$ for $x = 0$. What do you observe?

C. Zeros of Linear Polynomials

25. What is meant by the zero of a linear polynomial?

26. Find the zero of $x + 4$.

27. Find the zero of $x - 9$.

28. Find the zero of $2x - 10$.

29. Find the zero of $3x + 12$.

30. Find the zero of $5x - 15$.

31. Find the zero of $7 - 2x$.

32. Find the zero of $4x + 20$.

33. Verify that $x = 6$ is the zero of $2x - 12$.

34. Verify that $x = -3$ is the zero of $x + 3$.

35. If the zero of $3x + k$ is 4, find k .

36. If the zero of $ax + 6$ is -2 , find a .

D. Linear Patterns and Relationships

37. The cost of one notebook is ₹25. Write an expression for the cost of x notebooks.
38. A taxi charges ₹50 as a fixed charge and ₹12 per kilometre. Write a linear expression for the total fare for x kilometres.
39. A person saves ₹200 every month. Write an expression for the amount saved after x months.
40. A water tank contains 500 L of water and loses 20 L every hour. Write an expression for the amount of water left after x hours.
41. A plant is 15 cm tall and grows 3 cm every week. Write a linear expression for its height after x weeks.
42. The temperature is 30°C and decreases by 2°C every hour. Write an expression for the temperature after x hours.
43. A shop charges ₹100 for delivery plus ₹20 for every item purchased. Write the total cost for x items.
44. Explain why the relationship between the number of notebooks and their total cost is linear when each notebook has the same price.
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E. Graphs of Linear Relationships

45. Plot the graph of:

$$y = x + 2$$

for $x = -2, -1, 0, 1, 2$.

46. Make a table of values and plot:

$$y = 2x + 1$$

for $x = -2, -1, 0, 1, 2$.

47. Plot the graph of:

$$y = 3x$$

What do you observe about the graph?

48. Plot:

$$y = 5 - x$$

and identify its y-intercept.

49. Plot the graph of:

$$y = 2x + 4.$$

Identify:

- slope
- y-intercept

50. Draw the graph of:

$$y = -x + 3.$$

What happens to the graph when the coefficient of x is negative?

51. What type of graph is obtained for a linear relationship?

52. How can you determine whether a graph represents a linear relationship?

53. Explain the meaning of the point where a linear graph crosses the y-axis.

F. Slope and Y-Intercept

54. What is the slope of a straight line?

55. Find the slope of the line:

$$y = 3x + 5.$$

56. Find the slope of:

$$y = -2x + 7.$$

57. Find the y-intercept of:

$$y = 4x + 9.$$

58. Find the slope and y-intercept of:

$$y = 5x - 2.$$

59. Find the slope and y-intercept of:

$$y = -3x + 6.$$

60. What does a positive slope indicate?
61. What does a negative slope indicate?
62. What does a zero slope indicate?
63. Compare the slopes of:

$$y = 2x + 3$$

and

$$y = 5x + 3.$$

Which line is steeper?

G. Higher-Order Questions

64. The linear polynomial $ax + b$ has zero $-b/a$. Explain why.
65. If $3x + 5$ and $5x - 3$ are two linear polynomials, find their zeros and compare them.
66. A linear relationship passes through $(0, 4)$ and $(2, 10)$. Find its slope.
67. Using the points in Question 66, determine the equation of the linear relationship.
68. A line has slope 4 and y-intercept -3 . Write its equation.
69. A line has equation $y = -2x + 8$. At what value of x does it cross the x-axis?
70. Two linear relationships are given:

$$y = 2x + 5$$

$$y = 2x - 3$$

What do you observe about their slopes? What can you say about the two lines?

H. Application-Based Questions

71. Notebook Cost

A notebook costs ₹40.

- (a) Write an expression for the cost of x notebooks.
 - (b) Find the cost of 8 notebooks.
 - (c) What is the cost of 15 notebooks?
 - (d) Is this a linear relationship?
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72. 🚖 Taxi Fare

A taxi charges a fixed ₹60 plus ₹15 per kilometre.

- (a) Write the fare equation.
 - (b) Find the fare for 10 km.
 - (c) What is the slope of the relationship?
 - (d) What does the y-intercept represent?
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73. 🌱 Plant Growth

A plant is initially 20 cm tall and grows 4 cm each week.

- (a) Write an expression for its height after x weeks.
 - (b) Find its height after 6 weeks.
 - (c) Identify the slope.
 - (d) Identify the y-intercept.
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74. 💧 Water Tank

A tank initially contains 800 L of water. It loses 25 L every hour.

- (a) Write an expression for the amount of water remaining after x hours.
 - (b) Find the amount after 8 hours.
 - (c) What is the slope?
 - (d) Explain the meaning of the negative slope.
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I. Most Important Exam Questions

These are the questions I would **definitely include** in your Important Questions PDF:

1. Define a linear polynomial and give examples.
2. Find the value of a linear polynomial for given values of x .
3. Find the zero of a given linear polynomial.
4. Verify whether a given number is the zero of a polynomial.
5. Find an unknown coefficient when the zero is given.
6. Form a linear expression from a real-life situation.
7. Construct a table of values for a linear relationship.
8. Plot the graph of a linear relationship.
9. Identify the slope and y-intercept from an equation.
10. Find the slope from two points on a graph.
11. Write the equation of a line when its slope and y-intercept are known.
12. Interpret the slope and y-intercept in a real-life situation.
13. Solve a word problem involving a linear relationship.
14. Compare two linear relationships using their slopes.
15. Determine the x-intercept/zero from a linear equation.



ANSWER KEY

Q	Answer	Q	Answer
1	Polynomial in which variable has degree 1	9	11
2	1	10	1
3	1	11	Value of x for which polynomial = 0
4	$ax + b, a \neq 0$	12	5
5	7	13	-3
6	8	14	Straight line
7	Yes	15	Rate of change
8	No	16	Value when $x = 0$
17	a, c	26	-4
18	Any valid examples	27	9
19(a)	-3	28	5
19(b)	7	29	-4

19(c)	-8	30	3
20	10	31	7/2
21	17	32	-5
22	3	33	Yes
23	15	34	Yes
24	b	35	-12
25	Value making polynomial zero	36	3

Key Answers – Applications & Graphs

Q	Answer
37	$25x$
38	$50 + 12x$
39	$200x$
40	$500 - 20x$
41	$15 + 3x$
42	$30 - 2x$
43	$100 + 20x$
45	Points: $(-2, 0), (-1, 1), (0, 2), (1, 3), (2, 4)$
46	Points: $(-2, -3), (-1, -1), (0, 1), (1, 3), (2, 5)$)
47	Straight line through origin; slope = 3
48	y-intercept = 5
49	Slope = 2; y-intercept = 4
50	Decreasing straight line; slope = -1

- 51 Straight line
- 55 Slope = 3
- 56 Slope = -2
- 57 y-intercept = 9
- 58 Slope = 5, y-intercept = -2
- 59 Slope = -3, y-intercept = 6
- 60 Line rises from left to right
- 61 Line falls from left to right
- 62 Horizontal line
- 63 $y = 5x + 3$ is steeper
- 66 Slope = 3
- 67 $y = 3x + 4$
- 68 $y = 4x - 3$
- 69 $x = 4$
- 70 Same slope; parallel lines