INDIAN SCHOOL AL WADI AL KABIR

Class IX, Mathematics

INTRODUCTION TO LINEAR POLYNOMIALS_DTQ WORKSHEET

26.04.2026

Questions of 2 marks each

Q.1. Find the value of the linear polynomial 2m – 7 if: (i) m = 0 (ii) m = −7

Q.2. The present age of a father is four times his son's age. In 6 years, the sum of their ages will be 62. Find their present ages.

Q.3. A tailor has 220m of cloth. He cuts it into two pieces such that the longer piece is 20m more than three times the length of the shorter piece.

Q.4. Identify the polynomials from the given set of expressions

(i) $\frac{1}{x^{-2}} + \frac{1}{x^{-1}} + \frac{1}{2}$ (ii) $b^2(b^3 - 1)$ (iii) $\frac{(t^2+t+1)(t+1)}{(t+1)}$ (iv) $h^2 + \frac{1}{h^2}$

Q.5. Taxi fare is given in the table. Is the pattern linear? Explain.

Distance	1	2	3	4
Fare (₹)	65	80	95	110

Questions of 3 marks each

Q.6. Plot points for the graph y = 2x + 1 by completing the table.

x	1	2	5	7	9	12	20
y	3			15			

Q.7. Suppose the base of the parallelogram is fixed at 15 cm. Find the area if the perpendicular height is (i) 6 cm (ii) 9 cm (iii) 12 cm.

Also find the linear pattern representing the area of the parallelogram.

Q.8. If we multiply a number by $\frac{2}{3}$, subtract $\frac{1}{4}$ from the result, and then divide the entire difference by 2, you get $-\frac{5}{12}$. Find the number.

Q.9. A two-digit number is 4 more than 6 times the sum of its digit. If 18 is subtracted from the number, the digits are reversed. Find the number.

Q.10. The present age of a women is 3 years more than three times the age of her daughter. Three years hence, the women's age will be 10 years more than twice the age of her daughter, Find their present ages.

Questions of 5 marks each

Q.11. Draw the graphs of the following sets of lines. In each case, reflect on the role of 'a' and 'b'.

(i) $y = -2x - 3$, (ii) $y = -2x$, (iii) $y = 2x + 3$

Q.12. Look at the first three stages of a growing pattern of squares made using matchsticks. A new square gets added at every stage which shares a side with the last square of the previous stage.

(i) Draw the next two stages of the pattern. How many matchsticks will be required at these stages?

(ii) Complete the following table.

Stage Number	1	2	3	4	5	...	n
Number of matchsticks							

(iii) Find a rule to determine the number of matchsticks required for the nth stage.

(iv) How many matchsticks will be required for the 15^{th} stage of the pattern?

(v) Can 200 matchsticks form a stage in this pattern? Justify your answer.

Q.13. If you have ₹ 800 and you save ₹ 250 every month.

(i) Find the amount you have after (i) 6 months (ii) 2 years.

(ii) Express this as a linear pattern.

(iii) Represent the growth of savings over time on graph

Q.14. Draw the graph of the following equations and identify their slopes and y-intercepts. Also, find the coordinates of the points where these lines cut y-axis.

(i) $y = -3x + 4$

(ii) $2y = 4x + 7$

(iii) $5y = 6x - 10$

(iv) $3y = 6x - 11$

Are any of these lines parallel? Explain.

CASE STUDY QUESTION:

A milk store owner observes that the weekly demand of milk depends on its selling price. The following data is recorded:

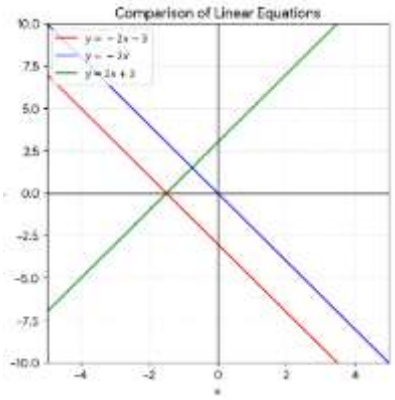
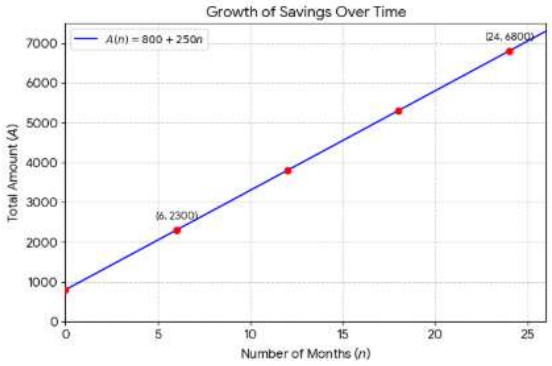
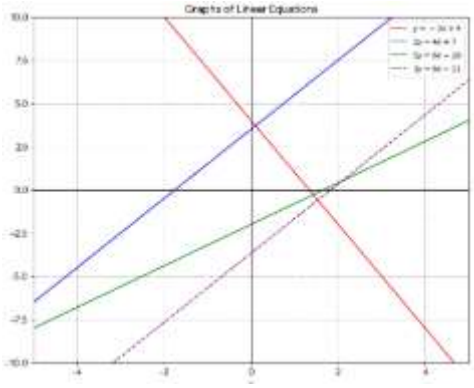
- At ₹14 per litre, demand = 980 litres
- At ₹16 per litre, demand = 1220 litres

Assuming a linear relationship y = a x + b, where x is price and y is demand:

Based on the above information, answer the following questions.

Q.15.	Form two linear equations using the given data.
Q.16.	Find the values of a and b.
Q.17.	Write the linear polynomial representing the relationship.
Q.18.	Find the demand when the price is ₹17 per litre and ₹21 per litre.

ANSWERS

	Q.1.	-7, -21	**Q.2.**	10 yrs, 40yrs	**Q.3.**	50 m and 170 m	**Q.4.**	(i), (ii), (iii)
	Q.5.	yes	**Q.7.**	$90cm^2$, $135cm^2$, $180cm^2$, A=15h	**Q.8.**	-7/8	**Q.9.**	64
	Q.10.	33yrs , 10yrs	**Q.11.**	(i)a=-2, b=-3 (ii) a=-2, b=0 (iii) a=2, b=3 			**Q.12.**	(iii) m=3n+1, (iv)46, (v) no
	Q.13.	(i) ₹ 2300, ₹6800, (ii) a=800+250n 			**Q.14.**	(i) -3, (0,4) (ii) 2, (0,3.5) (iii) 1.2, (0,-2) (iv) 2, (0,-3.6) Yes , (ii) and (iv) are parallel 		
	Q.15.	980=14a+b, 1220=16a+b	**Q.16.**	a=120, b=-700	**Q.17.**	y = 120x-700	**Q.18.**	1340 litres, 1820 litres

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