AIR FORCE SCHOOL JAMMU
SESSION 2026-27
CLASS X
SUBJECT - MATHEMATICS
ASSIGNMENT ON POLYNOMIALS

Section A

1 The zeros of the polynomial $x^2 - 2x - 3$ are **[1]**

a) $-3, 1$

b) $3, -1$

c) $3, 1$

d) $-3, -1$

2 The sum and the product of the zeros of a quadratic polynomial are 3 and -10 respectively. The quadratic polynomial is **[1]**

a) $x^2 - 3x + 10$

b) $x^2 - 3x - 10$

c) $x^2 + 3x - 10$

d) $x^2 + 3x + 10$

3 The zeros of the quadratic polynomial $x^2 + 88x + 125$ are **[1]**

a) both negative

b) both positive

c) both equal

d) one positive and one negative

4 Ifα and β are the zeroes of the polynomial $2x^2 + 5x + 1$, then the value of $\alpha + \beta + \alpha\beta$ is **[1]**

a) - 2

b) 3

c) - 1

d) 1

5 If α and β are the zeros of the polynomialf(x) =x^2 +px+q, then a polynomial having $\frac{1}{\alpha} and \frac{1}{\beta}$ is its zero is **[1]**

a) qx^2 +px+ 1

b) x^2 +qx+p

c) x^2 - px+q

d) px^2 +qx+ 1

6 Ifα and β are the zeros of $2x^2 + 5x - 9$ then the value of $\alpha\beta$ is **[1]**

a) $\frac{-9}{2}$

b) $\frac{9}{2}$

c) $\frac{5}{2}$

d) $\frac{-5}{2}$

7 If α, β are the zeros of the polynomial $f(x) = x^2 + x + 1$, then $\frac{1}{\alpha} + \frac{1}{\beta} =$ **[1]**

a) - 1

b) 1

c) None of these

d) 0

8 If α, β are the zeros of the polynomial $p(x) = 4x^2 + 3x + 7$, then $\frac{1}{\alpha} + \frac{1}{\beta}$ is equal to **[1]**

a) $\frac{3}{7}$

b) $-\frac{3}{7}$

c) $-\frac{7}{3}$

d) $\frac{7}{3}$

9 The number polynomials having zeroes as – 2 and 5 is **[1]**

a) 1

b) 2

c) 3

d) more than 3

10 If one of the zeroes of the quadratic polynomial $14x^2 - 42k^2 x - 9$ is negative of the other, then the value of kis **[1]**

a) 3

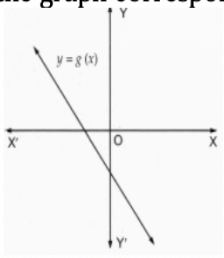
b) 0

c) 1

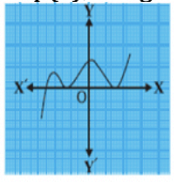
d) 2

Section – B

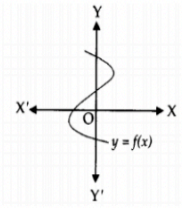
11 Identify that the graph corresponds to a linear polynomial or a quadratic polynomial?? **[1]**



12 For a polynomial p(x), the graph of y = p(x) isgiven below. Find the number of zeroes of p(x). **[1]**



13 In the adjoining figure, the graph of f(x) is drawn. Find the number of zeroes of **[1]**



f(x).

14 If the sum of the zeros of the quadratic polynomial $f(t) = kt^2 + 2t + 3k$ is equal to their product, find the value of k. **[1]**

15 Write the zeros of the quadratic polynomial $f(x) = 6x^2 - 3$. **[1]**

16 Finda quadratic polynomial whose zeroes are 3 and - 5. **[1]**

17 Write a quadratic polynomial, the sum and product of whose zeroes are 3 and - 2. **[1]**

18 If the sum and the product of the zeroes of a quadratic polynomial are $-\frac{1}{2}$ and $\frac{1}{2}$ respectively, then find the polynomial. **[1]**

19 Find the sum and product of zeroes of the polynomial $p(x) = x^2 + 5x + 6$. **[1]**

20 If the product of zeros of the quadratic polynomial $f(x) = x^2 - 4x + k$ is 3, find the value of k. **[1]**

CASE STUDY:

1. An asana is a body posture, originally and still a general term for a sitting meditation pose, and later extended in hatha yoga and modern yoga as exercise, to any type of pose or position, adding reclining, standing, inverted, twisting, and balancing poses. In the figure, one can observe that pose can be related to representation of quadratic polynomials.

1. The shape of the pose shown is…….

2. The graph of parabola opens downwards, if _____

ASSIGNMENT ON PAIR OF LINEAR EQUATIONS IN TWO VARIABLES

1. Rajesh can row downstream 20km in 2 hours, and the upstream 4km in 2 hours. What will be the speed of rowing in still water?

(a) 6km/hr (b) 4km/hr (c) 3km/hr (d) 7km/hr

2. Five years ago, A was thrice as old as B and ten years later, A shall be twice as old as B. What is the present age of A.?

(a) 20 (b) 50 (c) 60 (d) 40

3. What types of lines do the pair of equations x=c and y=c represent graphically?

4. A boat moving at the rate of 5km/h in still water, takes thrice as much time going 40 km upstream as going 40 km downstream. Find the speed of the stream.

5. Write the pair of linear equations which have solutions x=2, y=-2.

6. Solve graphically: 4x-3y+4=0, 4x+3y-24=0.

7.For what values of a and b does the following pair of equations have an infinite number of solutions.

2x+3y=7, a(x + y)-b(x-y) = 3a+b-2

8. Ten years ago , the age of a mother was three times the age of her daughter.After 10 years , the mother's age will be twice the age of her daughter. Find their present ages.

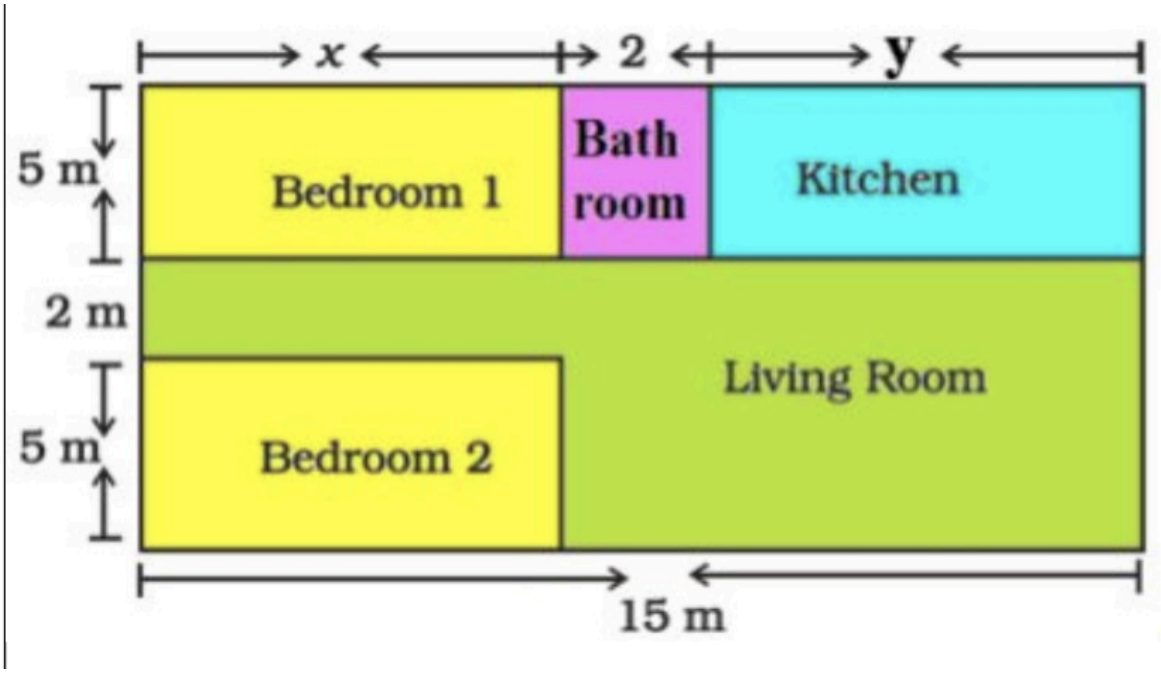
9. Find the value of k for which the system of equations is inconsistent. x+3y-4=0 , 2x+ky =7.

10. Draw the graphs of the equations y=-1 , y=3 and 4x-y =5. Also, find the area of the quadrilateral formed by the lines and the y- axis.

11. Solve the following pair of linear equations:

$99x$ + 101y = 499 , $101x$ + 99y = 501

12. Ajay is planning to buy a house and the layout is given below. The design and the measurement have been made such that areas of two bedrooms and kitchen together is 95sq.m.



Based on the above information, answer the following questions:

(i). Form the pair of linear equations in two variables from this situation.

(ii). Find the area of each bedroom and kitchen in the layout.

(iii) .Find the cost of laying tiles in the kitchen at the rate of Rs. 50 per sq.m.

ASSIGNMENT ON STATISTICS

1.The median of the set of 9 distinct observations is 20.5. If each of the largest 4 observations of the set is increased by 2, then the

median of the new set

(a) is increased by 2 **(b) is decreased by 2**

(c) is two times of the original number

(d) Remains the same as that of the original set

2. If the difference of mode and median of a data is 24 then the difference of median and mean is

(a)12 **(b) 24** **(c) 8** **(d) 36**

3. If the arithmetic mean of x, x + 3, x + 6, x + 9 and x + 12 is 10, then x = ?

4. Obtain the mean of the following distribution and also find the mode.

Marks obtained (out of 60)	*5*	*15*	*20*	*35*	*40*	*45*	*50*	*60*
No. of students	*7*	*10*	*6*	*8*	*12*	*3*	*5*	*4*

5. A survey regarding the heights (in cm) of 51 girls of Class X of a school was conducted and the following data were obtained:

Height (in cm)	Number of girls
Less than 140	4
Less than 145	11
Less than 150	29
Less than 155	40
Less than 160	46
Less than 165	51

Find the median height.

6. The transport department of a city wants to buy some Electric buses for the city. For which they want to analyse the distance travelled by existing public transport buses in a day.

The following data shows the distance travelled by 60 existing public transport buses in a day.

Daily distance travelled (in km)	200-209	210-219	220-229	230-239	240-249
Number of buses	4	14	26	10	6

Based on the above information, answer the following questions

(i) What is the median class?

(ii) The median of the distance travelled is.

(iii) If the mode of the distance travelled is 223.78 km. Find the mean of the distance travelled by the bus .