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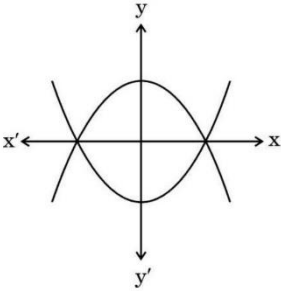
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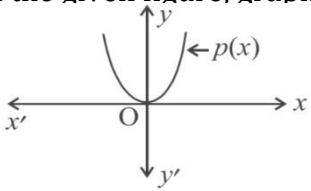
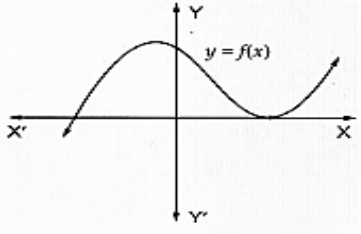
Worksheet

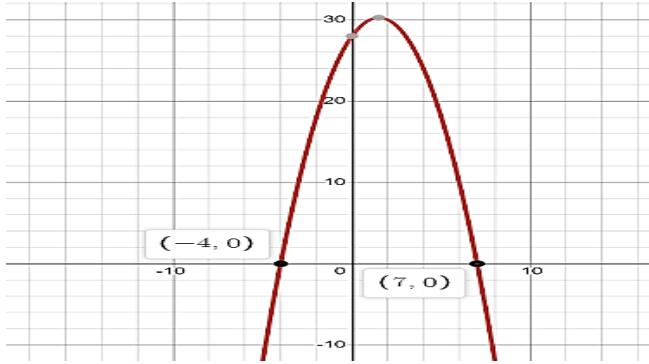
Submission Date :

Subject : Math

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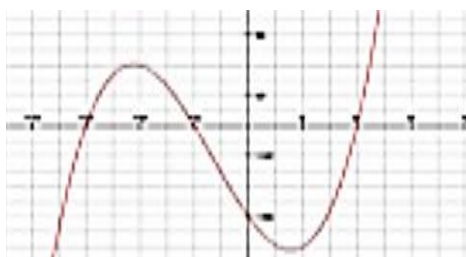
Section A		
1	If $\alpha$ and $\beta$ ( $\alpha > \beta$ ) are the zeroes of the polynomial $-x^2 + 8x + 9$ , then $(\alpha - \beta)$ is equal to a) 8                      b) $\pm 10$ c) 10                      d) - 10	[1]
2	The sum and the product of zeroes of the polynomial $p(x) = x^2 + 5x + 6$ are respectively a) 5, - 6                      b) - 2, - 3                      c) - 5, 6                      d) 2, 3	[1]
3	A quadratic polynomial whose sum and product of zeroes are 2 and - 1 respectively is: a) $x^2 + 2x + 1$ b) $x^2 + 2x - 1$ c) $x^2 - 2x - 1$ d) $x^2 - 2x + 1$	[1]
4	The zeroes of a polynomial $x^2 + px + q$ are twice the zeroes of the polynomial $4x^2 - 5x - 6$ . The value of p is: a) 10                      b) $\frac{5}{2}$ c) - 5                      d) $-\frac{5}{2}$	[1]
5	If $\alpha$ and $\beta$ are the zeroes of the polynomial $3x^2 + 4x - 3$ , then value of $\alpha\beta$ is a) $-\frac{4}{3}$ b) $\frac{4}{3}$ c) - 1                      d) 1	[1]
6	Two polynomials are shown in the graph below. The number of distinct zeroes of both the polynomials is:  a) 5                      b) 2 c) 4                      d) 3	[1]
7	If $\alpha$ and $\beta$ are the zeroes of the polynomial $ax^2 - 5x + c$ and $\alpha + \beta = \alpha\beta = 10$ , then: a) $a = 5, c = \frac{1}{2}$ b) $a = \frac{1}{2}, c = 5$ c) $a = \frac{5}{2}, c = 1$ d) $a = 1, c = \frac{5}{2}$	[1]
8	If one zero of the polynomials $(3x^2 + 8x + k)$ is the reciprocal of the other, then value of k is	[1]

	a) $-\frac{1}{3}$	b) 3	c) - 3	d) $\frac{1}{3}$	
9	If $\alpha, \beta$ are zeroes of a polynomial $p(x) = 2x^2 - x - 1$ then $\alpha^2 + \beta^2$ is equal to				[1]
	a) $\frac{1}{4}$	b) $\frac{5}{4}$	c) $\frac{3}{4}$	d) $\frac{-3}{4}$	
10	In the given figure, graph of $p(x)$ is shown. Number of distinct zeroes of $p(x)$ is:				[1]
			a) many	b) 0	
			c) 2	d) 1	
<b>Section B</b>					
11	If one zero of the polynomial $(a + 5)x^2 + 13x + 6a$ is reciprocal of the other, find the value of a.				[2]
12	Find the zeros of the polynomial $x^2 + \frac{1}{6}x - 2$ , and verify the relation between the coefficients and zeros of the polynomial.				[2]
13	Find the zeroes of the polynomial $4x^2 - 3x - 1$ by factorisation method and verify the relation between the zero and the coefficient of the polynomial.				[2]
14	$\alpha, \beta$ are zeroes of the polynomial $x^2 - 6x + a$ . Find the value of a, if $3\alpha + 2\beta = 20$ .				[2]
15	Find the zeroes of the polynomial $2x^2 + \frac{7}{2}x + \frac{3}{4}$ by factorisation method and verify the relation between the zero and the coefficient of the polynomial.				[2]
16	Find the number of real zeros of the polynomial $y = f(x)$ , having graph as shown in Fig.				[2]
17	Write the zeros of the quadratic polynomial $f(x) = 4\sqrt{3}x^2 + 5x - 2\sqrt{3}$				[2]
18	If $\alpha$ and $\beta$ are the zeros of the quadratic polynomial $f(x) = ax^2 + bx + c$ , then evaluate: $\frac{1}{\alpha} + \frac{1}{\beta} - 2\alpha\beta$ .				[2]
19	Find a quadratic polynomial, the sum of whose zeroes is 0 and one zero is 5.				[2]
20	Zeroes of the quadratic polynomial $x^2 + x - 6$ are ' $\alpha$ ' and ' $\beta$ '. Construct a quadratic polynomial whose zeroes are $\frac{1}{\alpha}$ and $\frac{1}{\beta}$ .				[2]
<b>Section C</b>					
21	Find the zeroes of the given quadratic polynomials and verify the relationship between the zeroes and their coefficients $x^2 - 6$ .				[3]
22	Find the zeroes of the polynomial $p(x) = 2x^2 + 5x + 2$ and verify the relationship between zeroes of $p(x)$ and its coefficients.				[3]
23	If $\alpha, \beta$ are the zeroes of the $x^2 + 7x + 7$ , find the value of $\frac{1}{\alpha} + \frac{1}{\beta} - 2\alpha\beta$ .				[3]
24	If $\alpha, \beta$ are the zeros of the polynomial $2x^2 - 4x + 5$ . find the value of (i) $\alpha^2 + \beta^2$ (ii) $(\alpha - \beta)^2$ .				[3]

25	Find the zeroes of the polynomial $25a^2 - 10a + 1$ and verify the relationship between the zeroes and coefficients of the given polynomial.	[3]
26	If $\alpha, \beta$ are zeroes of the quadratic polynomial $x^2 + 9x + 20$ , form a quadratic polynomial whose zeroes are $(\alpha + 1)$ and $(\beta + 1)$ .	[3]
27	Find a quadratic polynomial whose sum and product of the zeroes are $\frac{-3}{2\sqrt{5}}, -\frac{1}{2}$ respectively. Also find the zeroes of the polynomial by factorisation.	[3]
28	If $\alpha$ and $\beta$ are the zeroes of the quadratic polynomial $f(x) = ax^2 + bx + c$ , then evaluate: $\frac{1}{\alpha} - \frac{1}{\beta}$	[3]
29	Find the zeroes of the quadratic polynomial $3x^2 - 2$ and verify the relationship between the zeroes and the coefficients.	[3]
30	If one zero of the polynomial $2x^2 + 3x + \lambda$ is $\frac{1}{2}$ , find the value of $\lambda$ and other zero.	[3]
<b>Section D</b>		
31	<p><b>Read the following text carefully and answer the questions that follow:</b></p> <p>Two friends Govind and Pawan decided to go for a trekking. During summer vacation, they went to Panchmarhi. While trekking they observed that the trekking path is in the shape of a parabola. The mathematical representation of the track is shown in the graph.</p>  <ol style="list-style-type: none"> <li>What are the zeroes of the polynomial whose graph is given? (1)</li> <li>What will be the expression of the given polynomial <math>p(x)</math>? (1)</li> <li>What is the product of the zeroes of the polynomial which represents the parabola? (2)</li> </ol> <p><b>OR</b></p> <p>In the standard form of quadratic polynomial, <math>ax^2 + bx + c</math>, what are <math>a, b</math>, and <math>c</math>? (2)</p>	[4]
32	<p><b>Read the following text carefully and answer the questions that follow:</b></p> <p>Basketball and soccer are played with a spherical ball. Even though an athlete dribbles the ball in both sports, a basketball player uses his hands and a soccer player uses his feet. Usually, soccer is played outdoors on a large field and basketball is played indoor on a court made out of wood. The projectile (path traced) of soccer ball and basketball are in the form of parabola representing quadratic polynomial.</p>	[4]



1. Which type the shape of the path traced shown in given figure? (1)
2. Why the graph of parabola opens upwards? (1)
3. In the below graph, how many zeroes are there? (2)



**OR**

What is the condition for the graph of parabola to open downwards? (2)

### Section E

33	Find the zeroes of a quadratic polynomial $2x^2 + 3x - 14$ and verify the relationship between the zeroes and its coefficients.	<b>[5]</b>
34	If $\alpha$ and $\beta$ are the zeroes of polynomial $p(x) = 3x^2 + 2x + 1$ , find the polynomial whose zeroes are $\frac{1-\alpha}{1+\alpha}$ and $\frac{1-\beta}{1+\beta}$ .	<b>[5]</b>
35	If $\alpha$ and $\beta$ are the zeros of the quadratic polynomial $f(x) = ax^2 + bx + c$ , then evaluate: $a\left(\frac{\alpha^2}{\beta} + \frac{\beta^2}{\alpha}\right) + b\left(\frac{\alpha}{\beta} + \frac{\beta}{\alpha}\right)$	<b>[5]</b>
36	Obtain the other zeroes of the polynomial $p(x) = x^4 + 2x^3 - 7x^2 - 8x + 12$ if two of its zeroes are $(-2)$ and $(-3)$ .	<b>[5]</b>
37	If $\beta$ and $\frac{1}{\beta}$ are zeroes of the polynomial $(\alpha^2 + \alpha)x^2 + 61x + 6\alpha$ . Find the values of $\beta$ and $\alpha$ .	<b>[5]</b>
38	If $\alpha$ and $\beta$ are zeroes of the polynomial $p(x) = 6x^2 - 5x + k$ such that $\alpha - \beta = \frac{1}{6}$ , find the value of $k$ .	<b>[5]</b>
39	If $\alpha$ and $\beta$ are the zeroes of the polynomial $p(x) = 6x^2 + 5x - k$ satisfying the relation, $\alpha - \beta = \frac{1}{6}$ , then find the value of $k$ .	<b>[5]</b>
40	Find the zeros of $q(y) = 7y^2 - \frac{11}{3}y - \frac{2}{3}$ and verify the relationship between the zeros and its coefficients.	<b>[5]</b>