

Swotters Academy

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est / Exam Name: Maths - Polynomials		Standard: 10th	Subject: Mathematics	
Student Name:		Section:	Roll No.:	
			Questions: 27 Time: 01:45 hh:mr	m Marks: 50
Instructions				
	age should be in proper mann	er too		
New section on new pag Honesty is the best police				
		SECTION-A		
Q1. In fig. the graph of the	polynomial p(x) is given. The nu	umber of zeroes of the polynomial is:		1 Mark
2 1 1 2 1 2 2 3 3	! 			
A 1	B 2	C 3	D 0	
Q2. If α, β are the zerose of	f a polynomial $p(x) = x^2 + x - 1$,	then, $lpha^2+eta^2$ is equals to:		1 Mark
A $\frac{-3}{4}$	B 5/4	C 1/4	D 3/4	
	ial, the sum of whose zeroes is			1 Mark
A x ² + 5x + 6.	B x ² - 5x + 6.	C x ² - 5x - 6.	$D -x^2 + 5x + 6$.	1 Manule
14. Ine graph of y = p(x) is	given in the adjoining figure. Ze	eroes of the polynomial p(x) are:		1 Mark
x (-5, 0) (5 o) 0	$ \begin{array}{c c} \hline (7,0) \\ \hline (7,0) \end{array} x $			
A −5, 7		$B = \frac{-5}{2}, \frac{-7}{2}$		
c −5, 0, 7		$\begin{array}{ccc} \mathbf{B} & \frac{-5}{2}, \frac{-7}{2} \\ \mathbf{D} & -5, \frac{-5}{2}, \frac{-7}{2}, 7 \end{array}$		
Q5. IIn an A.P., if the first to	erm (a) = — 16 and the commo	n difference (d) =- 2, then the sum of firs	t 10 terms is:	1 Mark
A - 200	B - 70	C - 250	D 250	
A m, m + 3	somial x ² – 3x – m (m + 3) are: B –m, m + 3	6 (3)	D -m (m + 3)	1 Mark
	f a polynomial p(x) = x ² + x - 1, 1	C m, $-$ (m + 3) then, $\frac{1}{-} + \frac{1}{-}$ equals to:	D -III, - (III + 3)	1 Mark
A 1	B 2	C -1	D =1	
	or a polynomial p(x) where gra	ph of y = p(x) is given in Figure, is:	- 2	1 Mark
0	x - p(x)			
A 3	B 4 ial having zeroes -3 and 4 only	C 0	D 5	1 Mark
A 2	B 1	C More than 3	D 3	2 14101 K
		by a statement of Reason (R). Choose th		1 Mark
		xis at only one point, then the polynomi	al cannot be a quadratic polynomial.	
	ial of degree n(n > 1) can have			
	nd Reason (R) are true and Rea	son (R) B Both, Assertion (A) correct explanation	and Reason (R) are true but Reason (R) is not	
is 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.		
	4) is a zero of the polynomial x			1 Mark
Q27. Shray, who is a social w	orker, wants to distribute mask	c polynomial represented in the yoga po s, gloves, and hand sanitizer bottles in hi zeroes $\alpha,\ \beta,\ \gamma\ (\alpha,>\beta,>\gamma)$ of the pol	is block. Number of masks, gloves and sanitizer	5 Marks
â OSS (1 1 1			





2.3,6,5

2. 3, 6, 5
3. 10, 5, 3
4. 4, 8, 9
2. The sum of product of zeroes taken two at a time is:
1.91
2.92

3. 94 4. 95

3. Product of zeroes of polynomial p(x) is: 1. 150 2. 160 3. 170

4. 180 4. The value of the polynomial p(x), when x = 4 is:

4. a $5. \text{ If } \alpha, \beta, \gamma \text{ are the zeroes of a polynomial g(x) such that } \alpha+\beta+\gamma=3, \ \alpha\beta+\beta\gamma+\gamma\alpha=-16 \text{ and } \alpha\beta\gamma=-48 \text{ then g(x)}=1.x^3+2x^2+48x+6$ $2.x^3+3x^2+16x+48$ $4.x^3-3x^2-16x+48$

Q12. Write the zeroes of the polynomial $x^2 + 2x + 1$. 1 Mark **Q13.** If α , β are the zeroes of a polynomial, such that $\alpha + \beta = 6$ and $\alpha\beta = 4$ then write the polynomial. 1 Mark Q14. If a number x is chosen at random from the numbers -3, -2, -1, 0, 1, 2, 3, then find the probability of $x^2 < 4$. 1 Mark Q15. Are the following statements 'True' or 'False'? Justify your answers. 1 Mark If the zeroes of a quadratic polynomial ax2 + bx + c are both positive, then a, b and c all have the same sign.

SECTION-B

2 Marks

Q17. For what value of k, is 3 a zero of the polynomial $2x^2 + x + k$? Q17. For what value of k, is 3 a zero of the polynomial $2x^4 + x + k^2$ Q18. A teacher asked 10 of his students to write a polynomial in one variable on a paper and then to handover the paper. The following were the answers given by the students: 2x + 3, $3x^2 + 7x + 2$, $4x^3 + 3x^2 + 2$ $2x^2 + 3x^2 + 7x + 4$, $5x^2 - 7x + 2$, $2x^2 + 3x^2 - 7x + 2$, $2x^2 - 12x^2 + 3x^2 + 3x^$

Q16. Use Euclid's division algorith m to find the HCF of 255 and 867.

Q19. The graph of a polynomial f(x) is as shown in Fig. Write the number of real zeros of f(x).



Q20. Find the zeros of the following quadratic polynomial and verify the relationship between the zeros and their coefficients: $h(t) = t^2 - 15$ 2 Marks **Q21.** Divide the polynomial $f(x) = 3x^2 - x^3 - 3x + 5$ by the polynomial $g(x) = x - 1 - x^2$ and verify the division algorithm. 3 Marks 3 Marks

Q22. If α and β are the zeroes of the quadratic polynomial f(x) = $ax^2 + bx + c$, find evaluate: $a\left(\frac{\alpha^2}{\beta} + \frac{\beta^2}{\alpha}\right) + b\left(\frac{\alpha}{\beta} + \frac{\beta}{\alpha}\right)$ **Q23.** If α and β are the zeros of the quadratic polynomial $f(x) = x^2 - p(x+1) - c$, show that $(\alpha+1)(\beta+1) = 1 - c$

3 Marks Q24. Find the zeros of the following quadratic polynomial and verify the relationship between the zeros and the coefficients: $2\sqrt{3}x^2-5x+\sqrt{3}$ 3 Marks

SECTION-C

Q25. While designing the school year book, a teacher asked the student that the length and width of a particular photo is increased by x units each to double the area of the photo. The original photo is 18cm long and 12cm wide. Based on the above information, answer the following questions:

Write an algebraic equation depicting the above information.
 Write the corresponding quadratic equation in standard form.
 What should be the novigdimensions of the enlarged photo?
 Bean



OR

3. Can any rational value of x make the new area equal to 220cm?

Q26. Read the case study given below and answer the questions that follow: 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 poses can be related to representation of quadratic polynomial.



1. Identify the type of polynomial represented by the yoga pose in the figure.
2. Write the general form of a quadratic polynomial.
3. If the yoga pose in the figure represents the graph of the quadratic polynomial y = 2x² · 4x + 1, find the vertex of the parabola.