THE VILLAGE
INTERNATIONAL SCHOOL
"We Nurture Dreams"

Date:02/08/22 **GRADE: IX**	**MONTHLY TEST – 01(2023-24)** **MATHEMATICS**	**Max marks: 20** **Time: 1 Hour**

MARKING SCHEME

Qn. No	ANSWERS	Marks
1	d) Infinite rational numbers	1
2	d) 2.151551555…	1
3	b) 6	1
4	$a)\ x^3 + y^3 + 3x^2y + 3xy^2$	1
5	$a)\ x = 2$	1
6	Let x=1.272727… 100x= 127.2727.. 100x= 126+1.2727… =126+x 99x= 126 x = 126/99 = 14/11	2
7	$p(0) = 0^3 + 0^2 + 0 + 1$ $= 1$ $p(1) = 1^3 + 1^2 + 1 + 1$ $= 4$	2
8	Using the identity, $(x + y + z)^2 = x^2 + y^2 + z^2 + 2xy + 2yz + 2xz$ $(3x - y + 2z)^2 = (3x)^2 + (-y)^2 + (2z)^2 + 2(3x)(-y) +$ $2(-y)(2z) + 2(3x)(2z)$ $= 9x^2 + y^2 + 4z^2 - 6xy - 4yz + 12xz$	2

9	$\frac{2+\sqrt{3}}{2-\sqrt{3}} = \frac{2+\sqrt{3}}{2-\sqrt{3}} \times \frac{2+\sqrt{3}}{2+\sqrt{3}}$ $= \frac{(2+\sqrt{3})+(2+\sqrt{3})}{(2-\sqrt{3})(2+\sqrt{3})}$ $= \frac{(2+\sqrt{3})^2}{2^2-\sqrt{3}^2}$ $= \frac{4+4\sqrt{3}+3}{4-3}$ $= 7 + 4\sqrt{3}$ $\therefore a = 7 \; and \; b = 4$	3
10	Let $p(x) = x^3 + 3x^2 + 5x + 6$ $p(-2) = (-2)^3 + 3(-2)^2 + 5(-2) + 6$ $= -8 + 12 - 10 + 6$ $= 0$ So, $x + 2$ is a factor of $x^3 + 3x^2 + 5x + 6$ Let $q(x) = 2x + 4$ $q(-2) = 2(-2) + 4$ $= -4 + 4$ $= 0$ So, $x + 2$ is a factor of $2x + 4$	3
11	$25a^2 - 35a + 12 = 25a^2$ −20a-15a+12 $= 5a(5a - 4) - 3(5a - 4)$ $= (5a - 4)(5a - 3)$ The length and breadth of the rectangle are 5a-3 and 5a-4.	3
	THE END	