## INDIAN SCHOOL MUSCAT

HALF YEARLY EXAMINATION

## SEPTEMBER 2019

## CLASS IX

Marking Scheme -MATHEMATICS

| Q.NO. | Answers Set A | Marks (with split up) |
| :---: | :---: | :---: |
| 1 | SECTION A ( $20 \times 1=20$ ) <br> (a) $0.32010010001 \ldots$ | 1 mark each for qns. 1-20 |
| 2 | (c) $\sqrt{2} x^{2}-3 x+6$ |  |
| 3 | (d) quadrants I and IV |  |
| 4 | (d) -1 |  |
| 5 | (b) 1 |  |
| 6 | (b) y-axis |  |
| 7 | (a) A and C |  |
| 8 | (c) $120^{\circ}$ |  |
| 9 | (b) $\triangle \mathrm{CBA} \cong \triangle \mathrm{PRQ}$ |  |
| 10 | (c) $47^{\circ}$ |  |
| 11 | 0.3162 |  |
| 12 | $55^{\circ}$ |  |
| 13 | 1/5 |  |
| 14 | $60^{\circ}$ |  |
| 15 | (-4, -5) |  |
| 16 | $\mathrm{a}=-5$ |  |
| 17 | $120^{\circ}$ |  |
| 18 | 9984 |  |
| 19 | PR |  |
| 20 | $\mathrm{P}=14$ |  |
| 21 | ```SECTION -B (6 x 2 = 12) Let x=0.5777... 10x=5.777... 100x=57.777... solving, we get }x=26/4``` | $\begin{aligned} & 1 / 2 \\ & 1 / 2 \\ & 1 / 2+1 / 2 \end{aligned}$ |
| 22 | $9 a^{2}+4 b^{2}+25 c^{2}-12 a b-20 b c+30 a c$ <br> (OR) <br> $(x+y+z)^{2}=x^{2}+y^{2}+z^{2}+2(x y+y z+z x)$ substituting the given values and we get $\mathrm{x}^{2}+\mathrm{y}^{2}+\mathrm{z}^{2}=35$ |  |
| 23 | $(0,0)(8,0)$ | $1+1$ |
| 24 | $-2 \mathrm{x}+3 \mathrm{y}+4=0,5 \mathrm{x}+7=0$ | 1+1 |
| 25 | $5 x=180^{\circ}$ implies $x=36^{\circ}$ smaller angle is $72^{\circ}$ (OR) $x+10 x+40+2 x-30^{\circ}=180^{\circ}$ <br> After solving we get, $x=40^{\circ}$. angles of a triangle are $50^{\circ}, 80^{\circ}$ and $50^{\circ}$ this implies triangle is an isosceles $\Delta l e$. | $\begin{aligned} & \hline 1+1 / 2+1 / 2 \\ & 1 \\ & 1 / 2 \\ & 1 / 2 \end{aligned}$ |


| 26 | Given, to prove and proof |  |
| :---: | :---: | :---: |
| 27 | $\text { SECTION }-C(8 \times 3=24)$ <br> Construction - no. line, Perpendicular, showing no. on the number line, unit scale | $1 / 2+1+1+1 / 2$ |
| 28 | $\mathrm{a}, \mathrm{c}, \mathrm{e}$ are irrationals, $\mathrm{b}, \mathrm{d}$, and f are rationals |  |
| 29 | By remainder thm. $f(3)=g(3)$ <br> $27 a+36+9-4=27-12+a$ <br> By Solving, we get $a=-1$ (OR) <br> By taking LCM, we get $\frac{a^{3}+b^{3}+c^{3}}{3 a b c}=3 \quad\left(a^{3}+b^{3}+c^{3}=3 a b c\right)$ |  |
| 30 | q.30.from set B (Or) <br> $y+2 y+69=180^{\circ}$ ( linear pair) <br> solving we get $y=37^{\circ}$ <br> $37^{\circ}+x+x+13^{\circ}=180^{\circ}$ ( angle sum property of a triangle) <br> Implies $x=65^{\circ}$ <br> Therefore, the angles are $37^{\circ}, 65^{\circ}$ and $78^{\circ}$ |  |
| 31 | $\begin{aligned} & \text { In } \triangle A B C, A B=A C \text { implies } \angle B=\angle C \\ & \text { In } \triangle A B E \text { and } \triangle A C D \\ & A B=A C \\ & \angle B=\angle C \\ & B E=C D \\ & \text { Therefore }, \triangle A B E \cong \triangle A C D(B y \text { SAS } \cong R U L E) \\ & A E=A D(C P C T) \end{aligned}$ |  |
| 32 | Given, to prove, construction and proof. |  |
| 33 | Let the numbers be x and y $Y=3 x$ <br> $(1,3),(2,6),(3,9)$ or any other solutions.... |  |
| 34 | (i) $\left(3 p-\frac{1}{6}\right)^{3}$ <br> (ii) $(2 x+7 y)\left(4 x^{2}-14 x y+49 y^{2}\right)$ |  |
| 35 | SECTION-D $(6 \times 4=24)$ <br> Rationalizing the denominator and on simplification we get $\quad \mathrm{a}=$ 0 and $b=-2$ |  |
| 36 | $x=-1$ is a zero of the polynomial, quotient is $2 x^{2}+x-10$ using splitting the middle term we get, $(x+1)(2 x+5)(x-2)$ |  |
| 37 | Any three solutions Pt. (3, -2) does not lie on the graph. |  |
| 38 | Given, figure, to prove and proof. (OR) $\begin{aligned} & \angle \mathrm{QPS}+\mathrm{x}=\angle \mathrm{RPT} \\ & \angle \mathrm{QPS}=40^{\circ} \\ & \angle \mathrm{QPS}+\mathrm{x}+\mathrm{x}+30^{\circ}=90^{\circ} \\ & \text { On solving we get } \mathrm{x}=10^{\circ} \end{aligned}$ |  |
| 39 | Given, figure, to prove and proof. |  |
| 40 | After plotting the points on the graph, we get trapezium and its area $=15$ sq. units. |  |

