INDIAN SCHOOL MUSCAT
MIDDLE SECTION
FIRST TERM EXAMINATION 2018-19

SUBJECT – MATHEMATICS – ANSWER KEY

	SECTION A	
Qns		
1.	The digit in one's place in the cube root of 1728 is _____	Ans: 2
2.	The product of $\dfrac{2}{5}$ and its multiplicative inverse is _____	Ans: 1
3.	The measure of exterior angle of a regular hexagon is _____	Ans: 60^0
4.	Find the number of non square numbers between 99^2 and 100^2	Ans: 198
5.	The number of taps kept open and the time taken to empty the tank are in _____ proportion	Ans: Inverse
6.	Find the product : $(m^2) \times (2m^3) \times (4m^{15})$	Ans: $8m^{20}$

	SECTION B	
7.	List any 4 rational numbers between $\dfrac{-1}{6}$ and $\dfrac{-1}{3}$ LCM = 6 $\dfrac{-1\times1}{6\times1}$ and $\dfrac{-1\times2}{3\times2}$ $\dfrac{-1\times10}{6\times10}$ and $\dfrac{-2\times10}{6\times10}$ $\dfrac{-10}{60}$ and $\dfrac{-20}{60}$ **write any '4' rational numbers**	
8.	If 12 inches make 30 cm , how many inches are there in 120 cm **Inches (x) : 12 a** **Length(cm)(y) : 30 120** **X and y are in direct proportion** $\dfrac{12}{30} = \dfrac{x}{120}$ **Cross multiply and simplify x= 48 cm**	
9.	Find the least number by which 968 must be multiplied to make it a perfect cube **Least number to be multiplied is 11** <table><tr><td>2</td><td>968</td></tr><tr><td>2</td><td>484</td></tr><tr><td>2</td><td>242</td></tr><tr><td>11</td><td>121</td></tr><tr><td>11</td><td>11</td></tr><tr><td></td><td>1</td></tr></table>	
10.	Find the number of diagonals of a 24 sided polygon **No: of diagonals = $\dfrac{n(n-3)}{2}$ = $\dfrac{24 \times (24-3)}{2}$ = 12x21 = 252 diagonals**	
11.	Find the square root of 7056 by long division method	

		8 4	
	8	7056	Square root of 7056 = 84
	+8	-64	
	164	656	
		- 656	
		00	

12.	Find the area of a rectangle having length (2a- b) and breadth (a+b)
	Area = l x b = (2a – b) x (a+b)
	          =2a(a+b) – b(a +b)
	          = 2a^2 + 2ab – ab – b^2 = 2a^2 + ab – b^2

SECTION C

13.	What is the least number added to 5425 to make it a perfect square? Also find the square root of the number so obtained

		74
7	5425	
+7	-49	
144	525	
	- 576	
	51	

Long division   (2)
Least no: added is 51   (½)
5425+51= 5476 $\sqrt{5476} = 74$ (½)

14.	A stack of 729 sheets of paper is 27 cm thick. What will be the thickness of a stack of 540 sheets? No: of sheets (x): 729 540 Thickness (y): 27 a X and y are in Direct proportion $\dfrac{729}{27}$ = $\dfrac{540}{a}$ Cross multiply a = 20 cm

15.	Find the cube root of 91125 by prime factorisation method

5	91125
5	18225
5	3645
3	729
3	243
3	81
3	27
3	9
3	3
	1

$\sqrt[3]{91125}$ = 5x3x3= 45

16.	Simplify : 2m(m^2 – 3m +1) and find the value when m = 1
	          2m^3- 6m^2 + 2m
	          2(1)^3 – 6(1)^2 + 2(1)
	          2(1)- 6(1) - 2= 2- 6- 2= - 2

17.	The adjacent angles of a rhombus are (x + 5)^0 and (3x -1)^0 find all angles of the rhombus x+ 5 +3x -1 = 180^0 4x+4= 180 4x= 176 x= 44 Angles : 49^0 , 131^0 ,49^0, 131^0

18.	Construct a quadrilateral ABCD in which AB = 5.5 cm, BC = 4.4 cm , AC = 5.3 cm AD = 6 cm and CD = 5.7 cm **Constructing triangle ABC** **Construction of sides AD and CD** **Joining the points**

19.	What is the least number by which a perfect square ? **Least number divided is 3**	9408 must be divided so as to get

3	9408
2	3136
2	1568
2	784
2	392
2	196
2	98
7	49
7	7
	1

20.	The product of two rational numbers is $\dfrac{-14}{9}$. If one of them is $\dfrac{-5}{18}$,find the other number Other R No: = product ÷ given R No: $$\dfrac{-14}{9} \div \dfrac{-5}{18}$$ $$\dfrac{-14}{9} \times \dfrac{-18}{5} \;=\; \dfrac{28}{5}$$

21.	Subtract ($2a^2 - 3ab + 4bc + b^2$) from ($5a^2 - 8ab - 6cb - 4b^2$) ($5a^2 - 8ab - 6cb - 4b^2$) - ($2a^2 - 3ab + 4bc + b^2$) $5a^2 - 2a^2 - 8ab + 3ab - 6bc - 4bc - 4b^2 - b^2$ $3a^2 - 5ab - 10bc - 5b^2$

22.	Find the sum of interior angles of a polygon having 20 sides Interior angle sum = (n-2)x 180° = (20-2)x180° = 18x180° = 3240°

SECTION D

23.	Simplify using suitable property : $\left(\dfrac{-1}{2}\right)\times\left(\dfrac{5}{4}\right)+\left(\dfrac{-3}{8}\right)\times\left(\dfrac{5}{4}\right)$ $\dfrac{5}{4}\times\left(\dfrac{-1}{2}+\dfrac{-3}{8}\right)= \dfrac{5}{4}\times\left(\dfrac{-1\times4}{2\times4}+\dfrac{-3}{8}\right)= \dfrac{5}{4}\times\left(\dfrac{-4}{8}+\dfrac{-3}{8}\right)= \dfrac{5}{4}\times\dfrac{-7}{8}=\dfrac{-35}{32}$

24.	The exterior angles of a quadrilateral are (2x+5) ; (x-1); 3x and (3x-4). Find each exterior angle of the quadrilateral. (2x+5) +(x-1)+ 3x + (3x-4) = 360° 9x = 360° x= 40° The exterior angles are 85° , 39° , 120° , 116°

25.	Find the other members of a Pythagorean triplet whose one member is 24 One member 2m = 24 m= 12 Members of Pythagorean triplet ($m^2 - 1$) , 2m , ($m^2 + 1$) (143,24,145)

26.	There are 100 students in a hostel. Food provision for them is for 15 days. How long will these provisions last if 25 more students join the group

	No of students (x) : 100 125 **No of days (y) : 15 a** **X and y are in inverse proportion xy = constant** **100 x 15 = 125 x a a= <u>100 x 15</u>** ** = 12 days 125**
27.	**Construct a rectangle PQRS in which PQ = 6.2 cm and QR = 4.5 cm** **Drawing PQ** **Constructing sp angle 90** **On perpendicular drawing arc of radius 4.5 cm .Drawing the arc** **Joining the points to form a rectangle**
28.	**Find the perimeter of a square land having area 9604 m^2** **Side of the sq land = $\sqrt{9604}$** **Find the sq root of 9604 by long division method** **Side = 98 m** **Perimeter = side x 4 = 98 x 4 = 392 m**
29.	**Simplify : $(3p^2 + 3pq - q^2)(2p + 3q) - 6p^3 + 3q^3$** **$(3p^2 + 3pq - q^2)$ x 2p + $(3p^2 + 3pq - q^2)$ x 3q $- 6p^3 + 3q^3$** **$6p^3 + 6p^2q - 2pq^2 + 9p^2q + 9pq^2 - 3q^3 - 6p^3 + 3q^3$** **$15p^2q + 7pq^2$**
30.	**Construct a Rhombus EFGH in which EG = 5.5 cm , FH = 6.8 cm** **Drawing EG** **Construction of perpendicular bisector** **Cutting arcs on perpendicular having radius 3.4 cm** **Joining the figure**