General instructions for Students: Whatever be the notes provided, everything must be copied in the Maths copy and then do the HOMEWORK in the same copy.

Cube root of a negative perfect cube

We know that

$$(-a)^3 = (-a) \times (-a) \times (-a) = -a^3$$

$$\therefore \sqrt[3]{(-a)^3} = -(\sqrt[3]{a^3}) = -a$$

3	250047
3	83349
3	27783
3	9261
3	3087
3	1029
7	343
7	49
7	7
	1

Ex– 4.2 $Q.No.3(i)$ ***Find the cube root of*** (-250047).

Solution: $250047 = (3 \times 3 \times 3) \times (3 \times 3 \times 3) \times (7 \times 7 \times 7)$

$$\therefore \sqrt[3]{250047} = 3 \times 3 \times 7 = 63$$

Now, $\sqrt[3]{-250047} = -(\sqrt[3]{250047}) = -63$ ***Ans.***

Cube root of product of integers

$$\sqrt[3]{ab} = \sqrt[3]{a} \times \sqrt[3]{b}$$

2	512
2	256
2	128
2	64
2	32
2	16
2	8
2	4
2	2
	1

Ex – 4.2 $Q.No.4(i)$ ***Evaluate:*** $\sqrt[3]{512 \times 729}$

Solution: ***Given*** $\sqrt[3]{512 \times 729}$

$$= \sqrt[3]{512} \times \sqrt[3]{729}$$

$$= \sqrt[3]{(2 \times 2 \times 2) \times (2 \times 2 \times 2) \times (2 \times 2 \times 2)} \times \sqrt[3]{(3 \times 3 \times 3) \times (3 \times 3 \times 3)}$$

$$= (2 \times 2 \times 2) \times (3 \times 3)$$

$$= 8 \times 9$$

$$= 72 \quad Ans.$$

3	729
3	243
3	81
3	27
3	9
3	3
	1

Cube root of a rational number

$$\sqrt[3]{\frac{a}{b}} = \frac{\sqrt[3]{a}}{\sqrt[3]{b}}$$

Ex – 4.2 $Q.No.3(iv)$ ***Find the cube root of*** $4\frac{17}{27}$

Solution: ***Given*** $4\frac{17}{27} = \frac{125}{27}$

$$125 = (5 \times 5 \times 5)$$

$$27 = (3 \times 3 \times 3)$$

$$\therefore \sqrt[3]{\frac{125}{27}} = \frac{\sqrt[3]{125}}{\sqrt[3]{27}} = \frac{\sqrt[3]{5\times5\times5}}{\sqrt[3]{3\times3\times3}} = \frac{5}{3}$$ ***Ans.***

5	125
5	25
5	5
	1

3	27
3	9
3	3
	1

Cube root of a decimal number

Method: ***Convert decimal number into fraction*** $(in\ lowest\ term)$.

Ex – 4.2 $Q.No.5(i)$ ***Find the cube root of*** 0.003375

Solution: ***Given*** $0.003375 = \frac{3375}{1000000} = \frac{27}{8000}$

$$27 = (3 \times 3 \times 3)$$

$$8000 = (2 \times 2 \times 2) \times (2 \times 2 \times 2) \times (5 \times 5 \times 5)$$

$$\therefore \sqrt[3]{\frac{27}{8000}} = \frac{\sqrt[3]{27}}{\sqrt[3]{8000}}$$

$$= \frac{\sqrt[3]{3 \times 3 \times 3}}{\sqrt[3]{(2 \times 2 \times 2) \times (2 \times 2 \times 2) \times (5 \times 5 \times 5)}}$$

$$= \frac{3}{2\times2\times5}$$

$$= \frac{3}{20}$$

$$= \frac{3}{20} \times \frac{5}{5} = \frac{15}{100} = 0.15$$ ***Ans.***

3	*27*
3	*9*
3	*3*
	1

2	*8000*
2	*4000*
2	*2000*
2	*1000*
2	*500*
2	*250*
5	*125*
5	*25*
5	*5*
	1

EX – 4.2 Q.No. 10 Three numbers are in ratio 3 : 4 : 5. If their product is 480, find the numbers.

Solution: *Let the three numbers be* $3x$, $4x$ *and* $5x$, *then*

According to the question, $3x \times 4x \times 5x = 480$

$$\Rightarrow \quad 60x^3 = 480$$

$$\Rightarrow \quad x^3 = \frac{480}{60} = 8$$

$$\Rightarrow \quad x = \sqrt[3]{8}$$

$$\Rightarrow \quad x = \sqrt[3]{(2 \times 2 \times 2)}$$

$$\Rightarrow \quad x = 2$$

$$\therefore \quad 3x = 3 \times 2 = 6, \quad 4x = 4 \times 2 = 8 \quad and \quad 5x = 5 \times 2 = 10$$

Hence, the three numbers are 6, 8 *and* 10 *Ans.*

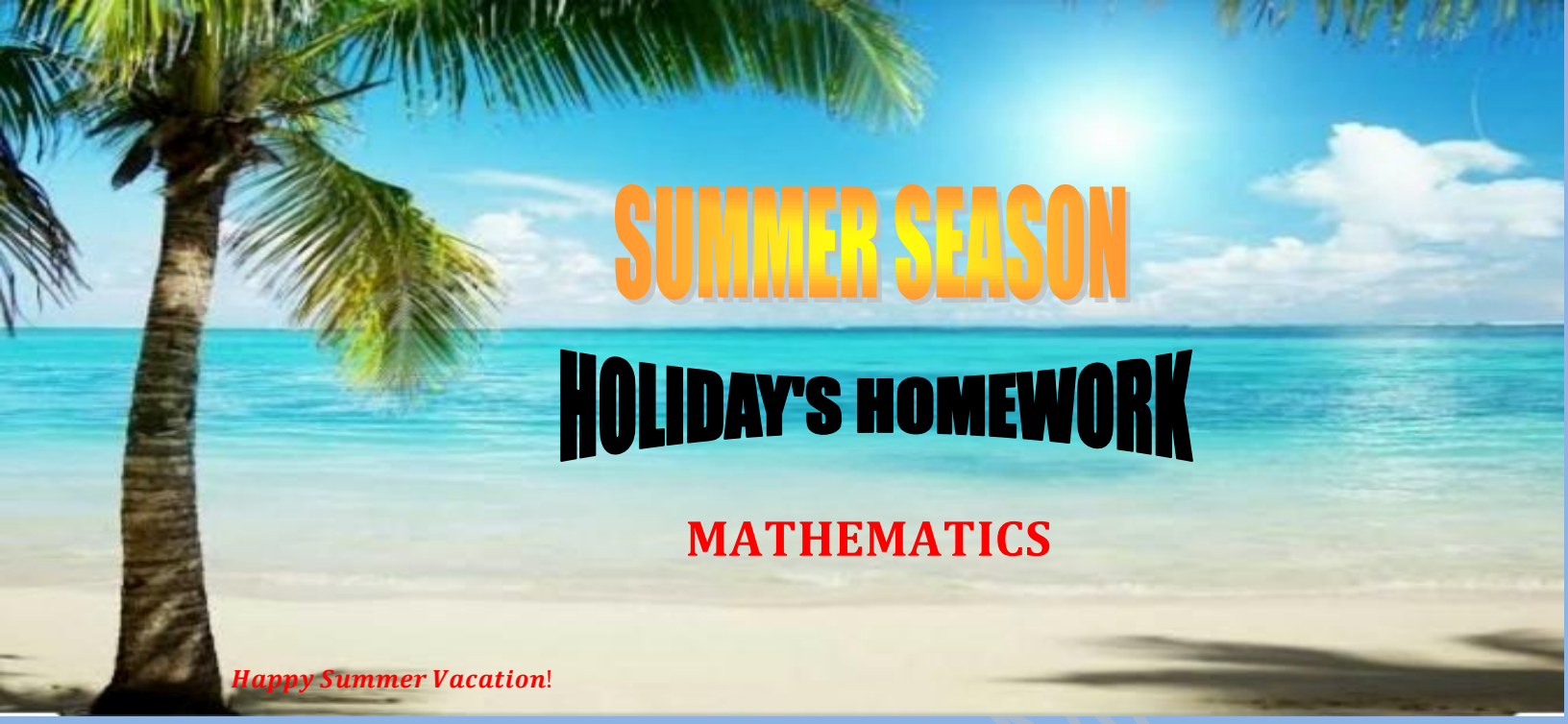
**********X**********

HOMEWORK

EXERCISE – 4.2

QUESTION NUMBERS: 3 (*ii*), (*iv*); 4 (*ii*), 5 (*ii*), 6, 9 *and* 12.

**********X**********



STD – VIII

Instructions for Students: ***Following work is to be done in the Maths notebook and submitted on time after the School reopens***

Chapter No. 1 Rational Numbers (Check your progress)

1. ***Evaluate the following:***

   $(i)\ 4\frac{2}{5}+3\frac{7}{8}$ $(ii)\ 6\frac{8}{9}-\left(-\frac{7}{3}\right)$ $(iii)\ -\frac{12}{13}\times 1$ $(iv)\ -\frac{7}{8}\div 15\frac{3}{4}$

2. ***Find the additive inverse of the following:***

   $(i)\ -13\frac{7}{8}$ $(ii)\ 4\frac{3}{6}$

3. ***Find the multiplicative inverse of the following:***

   $(i)\ -\frac{23}{46}$ $(ii)\ 0$

4. ***Represent*** $-\frac{3}{11}$ ***on the number line.***

5. ***Insert five rational numbers between*** $-\frac{3}{7}$ ***and*** $\frac{2}{5}$.

Chapter No.2 Exponents And Powers (Check your progress)

1. $Simplify$: $[3^3 - \left(\frac{1}{2}\right)^{-3} \times \frac{1}{19}]$
2. $Simplify$: $\frac{5^{n+2} - 6 \times 5^{n+1}}{13 \times 5^n - 2 \times 5^{n+1}}$
3. $If\ \frac{2^{-n} \times 8^{2n+1} \times 16^{2n}}{4^{3n}} = \frac{1}{16}$, $find\ the\ value\ of\ n$.
4. $Express\ the\ following\ numbers\ in\ standard\ form$:

   (i) 0.0000000003904 (ii) 12730000000000
5. $Mass\ of\ the\ Earth\ is\ 5.97 \times 10^{24}\ kg\ and\ mass\ of\ the\ Moon\ is\ 7.35 \times 10^{22}\ kg$.$What\ is\ the\ difference\ of\ their\ masses$?

Chapter No.3. Squares And Square Roots (Check your progress)

1. $Write\ a\ Pythagorean\ triplet\ whose\ one\ number\ is\ 17$.
2. $Find\ the\ square\ root\ of\ 5625\ by\ prime\ factorisation$.
3. $Find\ the\ square\ root\ of\ 108241\ by\ long\ division\ method$.
4. $Find\ the\ square\ root\ of\ 17.64$
5. $Find\ the\ square\ root\ of\ 1\frac{25}{144}$
6. $Find\ the\ length\ of\ diagonal\ of\ a\ rectangle\ whose\ length\ and\ breadth\ are\ 12\ m\ and\ 5\ m\ respectively$.
7. $Find\ the\ greatest\ number\ of\ 5\ digits\ which\ is\ a\ perfect\ square$.

Chapter No.4. Cubes And Cube Roots (Check your progress)

1. $Find\ the\ cube\ of\ the\ following\ numbers$: $(i) -17$ (ii) $-3\frac{4}{9}$
2. $Find\ the\ cube\ root\ of\ 21952$ $by\ prime\ factorisation$.
3. $Find\ the\ cube\ root\ of$ $2\frac{43}{343}$
4. $Find\ a\ side\ of\ a\ cube\ whose\ volume\ is\ 4096\ m^3$.
5. $Find\ the\ smallest\ number\ by\ which\ 3645\ should\ be\ divided\ so\ that\ quotient\ is\ a\ perfect\ cube.\ Also\ find\ the\ cube\ root\ of\ the\ quotient$.