11/5/21
Ex 4.2

Date
Page

4(B)

i. $\sqrt[3]{64} = \sqrt[3]{2^3 \times 2^3} = \sqrt[3]{2^3} \times \sqrt[3]{2^3}$

$= 2 \times 2 = 4$

2 | 64
2 | 32
2 | 16
2 | 8
2 | 4
2 | 2
1

ii. $\sqrt[3]{343} = \sqrt[3]{7^3} = \sqrt[3]{7^3} = 7$

7 | 343
7 | 49
7 | 7
1

iii. $\sqrt[3]{729} = \sqrt[3]{9^3} = \sqrt[3]{9^3} = 9$

9 | 729
9 | 81
9 | 9
1

iv) $\sqrt[3]{1728} \cdot \sqrt[3]{12^3} = 12$

12	1728
12	144
12	12
	1

v) $\sqrt[3]{9261} = \sqrt{3^3 \times 7^3} = \sqrt[3]{3^3} \times \sqrt[3]{7^3} = 3 \times 7$

$= 21$

3	9261
3	3087
3	1029
7	343
7	49
7	7
	1

vi) $\sqrt[3]{\frac{125}{216}} = \frac{\sqrt{5 \times 5 \times 5}}{\sqrt{6 \times 6 \times 6}} = \frac{5}{6}$

5	125
5	25
5	5
	1

6	216
6	36
6	6
	1

(iii) ~~$\frac{125}{216} = \frac{343}{512}$~~

(iv) $3375 \times 512 = \sqrt{15\times15\times15\times8\times8\times8} = 15\times8$
$= 120$

$= 17\ 28000$

15 | 1728000
15 | 115200
15 | 7680
8 | 512
8 | 64
8 | 8
1

3.(i) $\frac{27}{-125}$, $\sqrt[3]{-8} = -(\sqrt[3]{8})$

$= \sqrt[3]{\frac{-27}{125}} = \frac{\sqrt[3]{-27}}{\sqrt[3]{125}}$, $\sqrt[3]{(-3)^3}$
$= 3$

(vii) -5832 $\sqrt[3]{(-18)^3} = -18$

2 | 5832
2 | 2916
2 | 1458
3 | 729
3 | 243
3 | 81
3 | 27
3 | 9

$2^3 \times 3^3 \times 3^3$
$= 18^3$

(iii) $-2744000 = \sqrt[3]{(-140)^3} = -140$

5 | 2744000
5 | 548,800
5 | 109,760
4 | 21,952
4 | 5488
4 | 1372
7 | 343
7 | 49
7 | 7
1

$= 5^3 \times 4^3 \times 7^3$

$= 140^3$

(iv) 2.744

$= \sqrt[3]{\frac{2744}{1000}} = \frac{2 \times 2 \times 2 \times 7 \times 7 \times 7}{10 \times 10 \times 10}$

2 | 2744
2 | 1372
2 | 686
7 | 343
7 | 49
7 | 7
1

$= \frac{2^3 \times 7^3}{10^3}$

$= \frac{2 \times 7}{10} = \frac{14}{10} = 1.4$

iii) ~~0.000027~~ =

v) $-15.625 = \sqrt[3]{\frac{-15625}{1000}}$

5 | 15625
5 | 3125
5 | 625
5 | 125
5 | 25
5 | 5
1

$= \frac{5^3 \times 5^3}{10^3}$

$= \frac{(-5) \times 5}{10} = \frac{-25}{10} = -25$

5. 26244

3 | 26244
3 | 8748
3 | 2916
3 | 972
3 | 324
3 | 108
3 | 36
3 | 12
2 | 4
2 | 2
1

$= 3^3 \times 3^3 \times 3^3 \times 2 \times 2$

$= 3^3 \times 4$

6. 30375

3 | 30375
3 | 10125
3 | 3375
3 | 1125
3 | 375
5 | 125
5 | 25
5 | 5
1

$= 3^3 \times (3 \times 3) \times 5^3$

$= 3$

Q) 700 × 2 × 49 × 5

2 | 700
2 | 350
5 | 175
5 | 35
7 | 7
1

2 | 2
1

7 | 49
7 | 7
1

5 | 5
1

$= 2 \times 2 \times 5 \times 5 \times 7 \times 2 \times 7 \times 7 \times 5$

$= 2^2 \times 5^2 \times 7 \times 2 \times 7^2 \times 5$

$= 2^3 \times 5^3 \times 7^3 = \sqrt{2^3 \times 5^3 \times 10^3}$

$= 70$

(c) -216×1728

2 | 216
2 | 18
3 | 9
3 | 3
1

2 | 1728
2 | 864
2 | 432
2 | 216
2 | 108
2 | 54
3 | 27
3 | 9
3 | 3
1

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

$(2 \times 2 \times 2 \times 2 \times 2 \times 2)$

$(3 \times 3 \times 3)$

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

$= \sqrt{2^3 \times 2^3 \times 2 \times 2 \times 3^3 \times 3 \times 3}$

$= 2 \times 2 \times 2 \times 3 \times 3$

$= 72$