Ex - 9A

(1) (i) $7 = (7)^3 = 7 \times 7 \times 7 = 343$

(ii) $11 = (11)^3 = 11 \times 11 \times 11 = 1331$

(iii) $16 = (16)^3 = 16 \times 16 \times 16 = 4096$

(iv) $23 = (23)^3 = 23 \times 23 \times 23 = 12167$

(v) $31 = (31)^3 = 31 \times 31 \times 31 = 29791$

(vi) $42 = (42)^3 = 42 \times 42 \times 42 = 74088$

(vii) $54 = (54)^3 = 54 \times 54 \times 54 = 157464$

(2) Find which of the following are perfect cubes?

(i) 243

3	243
3	81
3	27
3	9
3	3
	1

$\therefore 243 = 3 \times 3 \times 3 \times 3$

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

$= 3^3 \times 3$

$\therefore$ 297 is not a perfect cube.

(ii) 588

	588
7	294
7	147
3	3
	1

2	588
2	294
7	147
7	21
3	3
	1

$\therefore 588 = 2 \times 2 \times 7 \times 7 \times 3$ is not a perfect cube.

(ii) 1331

11	1331
11	121
11	11
	1

$1331 = 11 \times 11 \times 11 = (11)^3$

$\therefore$ 1331 is a perfect cube.

(iv) $24000 = 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 5 \times 5 \times 5$

$= (2)^3 \times (2)^3 \times (5)^3 \times 3$

$\therefore$ 24000 is not a perfect cube.

(v) 1728

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

$\therefore 1728 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 3$

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

$\therefore$ 1728 is a perfect cube.

(vi) 1938

2	1938
3	969
17	323
19	19
	1

$1938 = 2 \times 3 \times 17 \times 19$

1938 is not a perfect cube.

(5) Find the cubes of:

(i) $2.1 = (2.1)^3 = \left(\frac{21}{10}\right)^3 = \frac{21 \times 21 \times 21}{10 \times 10 \times 10}$

$= \frac{9261}{1000} = 9.261$

(ii) $0.4 = (0.4)^3 = \left(\frac{4}{10}\right)^3 = \frac{4 \times 4 \times 4}{10 \times 10 \times 10}$

$= \frac{64}{1000} = 0.064$

(iii) $1.6 = (1.6)^3 = \left(\frac{16}{10}\right)^3 = \frac{16 \times 16 \times 16}{10 \times 10 \times 10}$

$= \frac{4096}{1000} = 4.096$

(iv) $2.5 = (2.5)^3 = \left(\frac{25}{10}\right)^3 = \frac{25 \times 25 \times 25}{10 \times 10 \times 10}$

$= \frac{15625}{1000} = 15.625$

(v) $0.12 = (0.12)^3 = \left(\frac{12}{100}\right)^3 = \frac{12 \times 12 \times 12}{100 \times 100 \times 100}$

$= \frac{1728}{1000000} = 0.001728$

(vi) $0.02 = (0.02)^3 = \left(\frac{2}{100}\right)^3 = \frac{2 \times 2 \times 2}{100 \times 100 \times 100}$

$= \frac{8}{1000000} = 0.000008$

(vii) $0.8 = (0.8)^3 = \left(\frac{8}{10}\right)^3 = \frac{8 \times 8 \times 8}{10 \times 10 \times 10}$

$= \frac{512}{1000} = 0.512$

Q) Find the cubes of:

(i) $\frac{3}{7} = \left(\frac{3}{7}\right)^3 = \frac{3 \times 3 \times 3}{7 \times 7 \times 7} = \frac{27}{343}$

(ii) $\frac{8}{9} = \left(\frac{8}{9}\right)^3 = \frac{8 \times 8 \times 8}{9 \times 9 \times 9} = \frac{512}{729}$

(iii) $\frac{10}{13} = \left(\frac{10}{13}\right)^3 = \frac{10 \times 10 \times 10}{13 \times 13 \times 13} = \frac{1000}{2197}$

(iv) $1\frac{2}{7} = \left(1\frac{2}{7}\right)^3 = \left(\frac{1 \times 7 + 2}{7}\right)^3 = \left(\frac{9}{7}\right)^3$

$= \frac{9 \times 9 \times 9}{7 \times 7 \times 7} = \frac{729}{343} = 2\frac{43}{343}$

(v) $2\frac{1}{2} = \left(2\frac{1}{2}\right)^3 = \left(\frac{5}{2}\right)^3$

$= \frac{5\times5\times5}{2\times2\times2} = \frac{125}{8} = 15\frac{5}{8}$

(5) Find the cubes of

(i) $-3 = (-3)^3 = -3 \times -3 \times -3$
$= -(3\times3\times3) = -27$

(ii) $-7 = (-7)^3 = -7 \times -7 \times -7$
$= -(7\times7\times7) = -343$

(iii) $-12 = (-12)^3 = 12 \times -12 \times -12$
$= -(12\times12\times12) = -1728$

(iv) $-18 = (-18)^3 = -18 \times -18 \times -18$
$= -(18\times18\times18) = -5832$

(v) $-25 = (-25)^3 = -25 \times -25 \times -25$
$= -(25\times25\times25) = -15625$

(vi) $-30 = (-30)^3 = -30 \times -30 \times -30$
$= -(30\times30\times30) = -27000$

(vii) $-50 = (-50)^3 = -50 \times -50 \times -50$
$= -(50\times50\times50) = -125000$