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CUBES AND CUBE-ROOTS

Exercise 4(A)

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

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

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

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

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

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

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

2) i) 243

3 | 243
3 | 81
3 | 27
3 | 9
3 | 3

$243 = 3^5$, isn't a perfect cube.

ii) 588

2 | 588
2 | 294
3 | 147
7 | 49
7 | 7

$588 = 2^2 \times 3 \times 7^2$, isn't a perfect cube.

iii) 1331

11 | 1331
11 | 121
11 | 11

$1331 = 11^3$, is a perfect cube.

iv) 24000

2 | 24000
2 | 12000
2 | 6000

2 | 3000
2 | 1500
2 | 750
3 | 375
5 | 125
5 | 25
5 | 5

$24000 = 2^6 \times 3 \times 5^3$, isn't a perfect cube.

v) 2 | 1728
2 | 864
2 | 432
2 | 216
2 | 108
2 | 54
3 | 27
3 | 9
3 | 3

$1728 = 2^6 \times 3^3$, is a perfect cube.

vi) 2 | 1938
3 | 969
| 323

$1938 = 2 \times 3 \times 323$, isn't a perfect cube.

3) i) $2.1^3 = 2.1 \times 2.1 \times 2.1 = 9.261$

ii) $0.4^3 = 0.4 \times 0.4 \times 0.4 = 0.064$

iii) $1.6^3 = 1.6 \times 1.6 \times 1.6 = 4.096$

iv) $2.5^3 = 2.5 \times 2.5 \times 2.5 = 15.625$

v) $0.12^3 = 0.12 \times 0.12 \times 0.12 = 0.001728$

vi) $0.02^3 = 0.02 \times 0.2 \times 0.2 = 0.000008$

vii) $0.8^3 = 0.8 \times 0.8 \times 0.8 = 0.512$

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

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

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

iv) $\left(1\frac{2}{7}\right)^3 = \frac{9}{7} \times \frac{9}{7} \times \frac{9}{7} = \frac{729}{343} = 2\frac{43}{343}$

v) $\left(2\frac{1}{2}\right)^3 = \frac{5}{2} \times \frac{5}{2} \times \frac{5}{2} = \frac{125}{8} = 15\frac{5}{8}$

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

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

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

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

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

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

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