Homework

1) i) $3331 = (3331)^3 =$ 3331 × 3331 × 3331

⇒ ones digit = 1 × 1 × 1 = 1

ii) $8888 = (8888)^3 =$ 8888 × 8888 × 8888

⇒ 8 × 8 × 8 = 512

⇒ ones digit = 2

iii) $149 = (149)^3 = 149 \times 149 \times 149$

$= 9 \times 9 \times 9 = 729$

⇒ ones digit = 9

iv) $1005 = (1005)^3 = 1005 \times 1005 \times 1005$

$= 5 \times 5 \times 5 = 125$

⇒ ones digit = 5

v) $1024 = (1024)^3 = 1024 \times 1024 \times 1024$

$= 4 \times 4 \times 4 = 64$

⇒ ones digit = 4

vi) $77 = (77)^3 = 77 \times 77 \times 77$

$= 7 \times 7 \times 7 = 343$

⇒ ones digit = 3

vii) $5022 = (5022)^3 = 5022 \times 5022 \times 5022$

$= 2 \times 2 \times 2 = 8$

⇒ ones digit = 8

viii) $53 = (53)^3 = 53 \times 53 \times 53$

$= 3 \times 3 \times 3 = 27$

⇒ ones digit = 7

2) i) 6^3

$= n = 6$ and $(n-1) = 5$

$= (6 \times 5) + 1 = 31$

$= 6^3 = 31 + 33 + 35 + 37 + 39 + 41 = 216$

ii) 8^3

$= n = 8$ and $(n-1) = 7$

$= (8 \times 7) + 1 = 57$

$= 8^3 = 57 + 59 + 61 + 63 + 65 + 67 + 69 + 71 = 512$

iii) 7^3.

$= n = 7$ and $(n-1) = 6$

$= (7 \times 6) + 1 = 43$

$= 7^3 = 43 + 45 + 47 + 49 + 51 + 53 + 55 = 343$

3) i) $400 = 2 \times 2 \times 2 \times 2 \times 5 \times 5$

$= (2 \times 2 \times 2)\ 2 \times 5 \times 5$ Hence it is not a perfect cube.

ii) $3375 = 3 \times 3 \times 3 \times 5 \times 5 \times 13$

$= (3 \times 3 \times 3) \times 5 \times 5 \times 13$ Hence it is not a perfect cube.

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

$= (2 \times 2 \times 2) \times (2 \times 2 \times 2) \times (5 \times 5 \times 5)$ Hence it is a perfect cube.

iv) $15625 = 5 \times 5 \times 5 \times 5 \times 5 \times 5$

$= (5 \times 5 \times 5) \times (5 \times 5 \times 5)$ Hence it is a perfect cube.

v) $9000 = 9 \times 2 \times 2 \times 3 \times 3 \times 5 \times 5 \times 5$

$= (2 \times 2 \times 2) \times (5 \times 5 \times 5) \times 3 \times 3$ Hence it is not a perfect cube.

vi) $6859 = 19 \times 19 \times 19$

$= (19 \times 19 \times 19)$ Hence it is a perfect cube.

4) ans- $392 = 2 \times 2 \times 2 \times 7 \times 7$

$= (2 \times 2 \times 2) \times 7 \times 7$ Hence it is not a perfect cube, we must multiply 392 by 7 so that the product becomes a perfect cube.

5) $53240 = 2 \times 2 \times 2 \times 5 \times 11 \times 11 \times 11$

$= (2 \times 2 \times 2) \times (11 \times 11 \times 11) \times 5$ Hence it is not a perfect cube, we must be divide 53240 by 5 so that the quotient is a perfect cube.

6) $1188 = 2 \times 2 \times 3 \times 3 \times 3 \times 11$

$= (3 \times 3 \times 3) \times 2 \times 2 \times 11$ Hence it is not a perfect cube

$= (3 \times 3 \times 3) \times 44$, we must be divide 1188 by 44 so that the quotient is a perfect cube.

7.) $68600 = 2 \times 2 \times 2 \times 5 \times 5 \times 7 \times 7 \times 7$

$= (2 \times 2 \times 2) \times (7 \times 7 \times 7) \times 5 \times 5$ Hence it is not a perfect cube.

We must multiply 68600 by 5 so that the product becomes a perfect cube.