assignment

1 i) The last digit of 3321 + 3331 is 1

The cube of 1 is 1

So, the last digit of the cube of 3331 is 1

ii) The last digit of 8888 is 8

The cube of 8 is 512

So, the last digit of the cube of 8888 is 2

iii) The last digit of 149 is 9

The cube of 9 is 729

So, the last digit of the cube of 149 is 9

iv) The last digit of 1005 is 5

The cube of 5 is 125

So, the last digit of the cube of 1005 is 5

v) The last digit of 1024 is 4

The cube of 4 is 64

So, the last digit of the cube of 1024 is 4

vi) The last digit of 77 is 7

The cube of 7 is 343

So, the last digit of the cube of 77 is 3

vii) The last digit of 5022 is 2

The cube of 2 is 8

So, the last digit of the cube of 5022 is 8

viii) The last digit of the no. 53 is 3

The cube of 3 is 27

So, the last digit of the cube of 53 is 7

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

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

c) $8^3 = 512 = 57, 59, 61, 63, 65, 67, 69, 71$

3 a) No

b) yes, $15^3 = 3375$

c) yes, $20^3 = 8000$

d) yes, $25^3 = 15625$

e) No

f) yes, $19^3 = 6859$

4. On finding the prime factor of 392,
we get : $392 = 2 \times 2 \times 2 \times 7 \times 7$
Clearly, 392 is not a perfect cube and it must be multiplied by 7 so that the product is a perfect cube.
$392 \times 7 = (2 \times 2 \times 2 \times 7 \times 7) \times 7$
$= (2 \times 7) \times (2 \times 7) \times (2 \times 7)$
$= 14^3$

5. On finding the prime factor of 53240,
we get : $2 \times 2 \times 2 \times 5 \times 11 \times 11 \times 11$
clearly, 53240 is not a perfect cube and it must be divided by 5 so that the quotient is a perfect cube.
$53240 \div 5 = (2 \times 2 \times 2 \times 5 \times 11 \times 11 \times 11) \div 5$
$= 2 \times 2 \times 2 \times 11 \times 11 \times 11$
$= (2 \times 11)(2 \times 11)(2 \times 11)$
$= 22^3$

6. On finding the prime factor of 1188,
we get: $1188 = 2 \times 2 \times 3 \times 3 \times 3 \times 11$
clearly, 1188 is not a perfect cube and it must be devided by 44 so that the quotient is a perfect cube.
$1188 \div 11 = (2 \times 2 \times 3 \times 3 \times 3 \times 11) \div 44$
$= 2 \times 2 \times 3 \times 3 \times 3$
$= 3^3$

7. On finding the prime factor of 68600,
we : $68600 = 2 \times 2 \times 2 \times 5 \times 5 \times 7 \times 7 \times 7$
clearly, 68600 is not a perfect cube and it must be multiplied by 5. so, that the product will be a perfect cube.
$68600 \times 5 = (2 \times 2 \times 2 \times 5 \times 5 \times 7 \times 7 \times 7) \times 5$
$= (2 \times 5)(2 \times 5 \times 7)(2 \times 5 \times 7)(2 \times 5 \times 7)$
$= 70^3$