4. Find the square roots of the following numbers by the Prime Factorisation Method.

(i) 729 (ii) 400 (iii) 1764 (iv) 4096 (v) 7744

(vi) 9604 (vii) 5929 (viii) 9216 (ix) 529 (x) 8100

(iii) We have

2	1764
2	882
3	441
3	147
7	49
7	7
	1

$1764 = 2 \times 2 \times 3 \times 3 \times 7 \times 7$

$\therefore \sqrt{1764} = 2 \times 3 \times 7 - 42$

$\therefore$ The square root of 1764 is 42. **Ans.**

5. For each of the Following numbers, find the smallest whole number by which it should be multiplied so as to get a perfect square number. Also find the square root of the square number so obtained.

(i) 252 (ii) 180 (iii) 1008

(iv) 2028 (v) 1458 (vi) 768

Sol: (i) We have

2	252
2	126
3	63
3	21
7	7
	1

$252 = 2 \times 2 \times 3 \times 3 \times 7$

$\because$ The prime factor 7 has no pair.

$\therefore [252] \times 7 = [2 \times 2 \times 3 \times 3 \times 7] \times 7$

or $1764 = 2 \times 2 \times 3 \times 3 \times 7 \times 7$

and $\sqrt{1764} = 2 \times 3 \times 7 = 42$

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or $1764 = 2 \times 2 \times 3 \times 3 \times 7 \times 7$

and $\sqrt{1764} = 2 \times 3 \times 7 = 42$

Thus, the required smallest whole number = 7 Ans.