**PARAGON CONVENT SCHOOL**

**SECTOR 24 - B CHANDIGARH**

**Exercise 4B**

**Q1. State which of the following are perfect cubes using method of prime factorization**

**a. 23328**

 **2 23328**

 **2 11664**

 **2 5832**

 **2 2916**

 **2 1458**

 **3 729 23328 = 2 x 2 x 2 x 2 x 2 x 3 x 3 x 3 x 3 x 3 x 3**

 **3 243 No, it is not a perfect cube**

 **3 81**

 **3 27**

 **3 9**

 **3 3**

 **1**

**b. 10648**

 **2 10648**

 **2 5324**

 **2 2662**

 **11 1331**

 **11 121**

 **11 11 10648 = 2 x 2 x 2 x 11 x 11 x 11**

 **1 Yes, it is a perfect cube**

**c. 52488**

 **2 52488**

 **2 26244**

 **2 13122**

 **3 6561**

 **3 2187**

 **3 729 52488 = 2 x 2 x 2 x 3 x 3 x 3 x 3 x 3 x 3 x 3 x 3**

 **3 243 No, it is not a perfect cube**

 **3 81**

 **3 27**

 **3 9**

 **3 3**

 **1**

**d. 74088**

 **2 74088**

 **2 37044**

 **2 18522**

 **3 9261**

 **3 3087**

 **3 1029 74088 = 2 x 2 x 2 x 3 x 3 x 3 x 7 x 7 x 7**

 **7 343 Yes, it is a perfect cube**

 **7 49**

 **7 7**

 1

**e. 36864**

 **2 36864**

 **2 18432**

 **2 9216**

 **2 4608**

 **2 2304**

 **2 1152 36864 = 2 x 2 x 2 x 2 x 2 x 2 x 2 x 2 x 2 x 2 x 2 x 2 x 3 x 3**

 **2 576 No, it is not a perfect cube**

 **2 288**

 **2 144**

 **2 72**

 **2 36**

 **2 18**

 **3 9**

 **3 3**

 **1**

**f. 15625**

 **5 15625**

 **5 3125**

 **5 625**

 **5 125**

 **5 25**

 **5 5 15625 = 5 x 5 x 5 x 5 x 5 x 5**

 **1 Yes, it is a perfect cube**

**Q2. What is the smallest number that must be multiplied with each of the following numbers to make it a perfect cube?**

**a. 5400**

 **2 5400**

 **2 2700**

 **2 1350**

 **3 675**

 **3 225**

 **3 75 5400 = 2 x 2 x 2 x 3 x 3 x 3 x 5 x 5**

 **5 25 so, 5 is the smallest number by which 5400 must be**

 **5 5 multiplied to make it a perfect cube**

 1

**b. 24696**

 **2 24696**

 **2 12348**

 **2 6174**

 **3 3087**

 **3 1029**

 **7 343 24696 = 2 x 2 x 2 x 3 x 3 x 5 x 5 x 5**

 **7 49 so, 3 is the smallest number by which 24696 must be**

 **7 7 multiplied to make it a perfect cube**

 1

**c. 408375**

 **3 408375**

 **3 136125**

 **3 45375**

 **5 15125**

 **5 3025**

 **5 605 408375 = 3 x 3 x 3 x 5 x 5 x 5 x 11 x 11**

 **11 121 so, 11 is the smallest number by which 408375 must be**

 **11 11 multiplied to make it a perfect cube**

 **1**

**d. 142884**

 **2 142884**

 **2 71442**

 **3 35721**

 **3 11907**

 **3 3969**

 **3 1323 142884 = 2 x 2 x 3 x 3 x 3 x 3 x 3 x 3 x 7 x 7**

 **3 441 so, 2 x 7 = 14 is the smallest number by which 142884 must be**

 **3 147 multiplied to make it a perfect cube**

 **7 49**

 **7 7**

 **1**

**Q3. What is the smallest number that must divide each of the following numbers to make it a perfect cube?**

**a. 370440**

 **2 370440**

 **2 185220**

 **2 92610**

 **3 46305**

 **3 15435**

 **3 5145 370440 = 2 x 2 x 2 x 3 x 3 x 3 x 5 x 7 x 7 x 7**

 **5 1029 so, 5 is the smallest number by which 370440 must be**

 **7 147 divided to make it a perfect cube**

 **7 49**

 **7 7**

 **1**

**b. 11576250**

 **2 11576250**

 **5 5788125**

 **5 1157625**

 **5 231525**

 **5 46305**

 **3 9261 11576250 = 2 x 5 x 5 x 5 x 5 x 3 x 3 x 3 x 7 x 7 x 7**

 **3 3087 so, 2 x 5 = 10 is the smallest number by which 11576250 must be**

 **3 1029 Divided to make it a perfect cube**

 **7 343**

 **7 49**

 **7 7**

 **1**

**c. 2012472**

 **2 2012472**

 **2 1006236**

 **2 503118**

 **3 251559**

 **3 83853**

 **3 27951 2012472 = 2 x 2 x 2 x 3 x 3 x 3 x 7 x 11 x 11 x 11**

 **7 9317 so, 7 is the smallest number by which 2012472 must be**

 **11 1331 divided to make it a perfect cube**

 **11 121**

 **11 11**

 **1**