**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**