**FUNDAMENTALS OF INDICES FOR YEAR 12 STUDENTS.**

1***. c3 × c4 =***

***2. cn + 1 × c3n + 5 =***

***3. 25 ×26 =***

***4. 23n + 4 × 2n – 1  =***

***5. pa × pb =***

***6. b × b × b × b × b***

 ***b × b × b***

***=***

***7. c8 =***

 ***c5***

***8. c a =***

 ***cb***

***9. c4 = c 4 – 4= c0 or 1***

 ***c4***

***10. b 2 = b – 4  or 1 .***

 ***b6***

***11. c3 = 1 or***

 ***c5 c2***

***12. 2 – 4  =***

***13. 3 2 =***

 ***4***

***14. 2  – 2  = 3  2  =***

 ***3 2***

***15. 1 – 3  =***

 ***2***

***16. 9 ½ × 9 ½  =***

***So 9 ½  must be***

***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***17. 64 ½  =***

***18. 9  ½  = √ 9***

 ***16 √16***

***=***

***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***19. 8 ⅓×8 ⅓×8 ⅓***

 ***= 81***

***So 8⅓must be***

***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***20. 27 ⅓=***

***21. 93/2 = 9 ½  3***

 ***= 33 =***

***22. 16 3/2 =***

***23. 82/3 = 8 1/3 2***

 ***=***

***24. b4 3 = b4×b4×b4***

 ***=***

***25. c3 5 =***

***26. c3 × c5 =***

***27. b⅓×b⅓ =***

***28. b⅓ ⅓=***

***29. 9 – 3/2  = 4 3/2***

 ***4 9***

 ***= 2  3 =***

 ***3***

***30. 1  – 2/3 =***

 ***64***

***31. 52n × 54n =***

***32. 35n + 6 =***

 ***3n + 1***

***33. 49 x8 ½***

 ***= √ 49 ×√ x8 =***

***34. 16 b16 ½***

***35. 16b8c12  ¼  =***

***36. 3x4 – 2***

***37. Show that :***

 ***2n + 4 × 23(n + 2)***

 ***22n × 22(n + 4)***

 ***is equal to 4***

***SOLUTIONS***

1***. c3 × c4 = c7***

***2. cn + 1 × c3n + 5 = c4n +6***

***3. 25 ×26 = 211 not 411!***

***4. 23n + 4 × 2n – 1  =24n+3***

***5. pa × pb = p(a + b)***

***6. b × b × b × b × b***

 ***b × b × b***

***= b2***

***7. c8 = c3***

 ***c5***

***8. c a = c (a – b)***

 ***cb***

***9. c4 = c 4 – 4= c0 or 1***

 ***c4***

***10. b 2 = b – 4  or 1 .***

 ***b6  b4***

***11. c3 = 1 or c – 2***

 ***c5 c2***

***12. 2 – 4  = 1***

 ***16***

***13. 3 2 = 9***

 ***4 16***

***14. 2  – 2 = 3 2  = 9***

 ***3 2 4***

***15. 1 – 3  = 8***

 ***2***

***16. 9 ½ × 9 ½  = 91***

***So 9 ½  must be √9***

***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***17. 64 ½  = 8***

***18. 9  ½  = √ 9***

 ***16 √16***

***= 3***

 ***4***

***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***19. 8 ⅓×8 ⅓×8 ⅓***

 ***= 81***

***So 8⅓must be*** $\sqrt[3]{8}$

***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***20. 27 ⅓= 3***

***21. 93/2 = 9 ½  3***

 ***= 33 = 27***

***22. 16 3/2 = 43 = 64***

***23. 82/3 = 8 1/3 2***

 ***= 22 = 4***

***24. b4 3 = b4×b4×b4***

 ***= b12***

***25. c3 5 = c15***

***26. c3 × c5 = c8***

***27. b⅓×b⅓ = b*⅔**

***28. b⅓ ⅓=***$ b^{\frac{1}{9}}$

***29. 9 – 3/2  = 4 3/2***

 ***4 9***

 ***= 2  3 = 8***

 ***3 27***

***30. 1  – 2/3 = 16***

 ***64***

***31. 52n × 54n = 56n***

***32. 35n + 6 = 34n+5***

 ***3n + 1***

***33. 49 x8 ½***

 ***= √ 49 ×√ x8 = 7x4***

***34. 16 b16 ½ = 4b8***

***35. 16b8c12  ¼  =2b2c3***

***36. 3x4 – 2  = 1 .***

 ***9x8***

***37. Show that :***

 ***2n + 4 × 23(n + 2)***

 ***22n × 22(n + 4)***

 ***= 24n + 10***

 ***24n + 8***

***= 22***

***which is equal to 4***