Table of Bases:

Steps to Solve Exponential Equations:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Base 1 | Base 2 | Base 3 | Base 4 | Base 5 | Base 6 | Base 7 | Base 8 | Base 9 |
| 10 = 1 | 20 = 1 | 30 = 1 | 40 = 1 | 50 = 1 | 60 = 1 | 70 = 1 | 80 = 1 | 90 = 1 |
| 11 = 1 | 21 = 2 | 31 = 3 | 41 = 4 | 51 = 5 | 61 = 6 | 71 = 7 | 81 = 8 | 91 = 9 |
| 12 = 1 | 22 = 4 | 32 = 9 | 42 = 16 | 52 = 25 | 62 = 36 | 72 = 49 | 82 = 64 | 92 = 81 |
| 13 = 1 | 23 = 8 | 33 = 27 | 43 = 64 | 53 = 125 | 63 = 216 | 73 = 343 | 83 = 512 | 93 = 729 |
| 14 = 1 | 24 = 16 | 34 = 81 | 44 = 256 | 54 = 625 | 64 = 1296 | 74 = 2401 | 84 = 4096 | 94 = 6561 |
| 15 = 1 | 25 = 32 | 35 = 243 | 45 = 1024 | 55 = 3125 | 65 = 7776 | 75 = 16807 | 85 = 32768 | 95 = 59049 |
| 16 = 1 | 26 = 64 | 36 = 729 | 46 = 4096 | 56 = 15625 | 66 = 46656 | 76 = 117649 | 86 = 262144 | 96 = 531441 |

1. Compare the bases on the left side and the right side of the equation, and find a common base.
2. Rewrite the left side with the common base
3. Rewrite the right side with the common base
4. Combine exponents using the laws of exponents
5. Eliminate the bases so that the exponents are the only pieces left on each side of the equation.
6. Solve the equation using the leftover exponents.

Solve the following:

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| Ex 1: 6 x+2 = 6 8 | Ex 2: 23x = 64 | Ex 3: 2-2n = 2-2n + 3 |