

Arithmetic - Powers/Exponents - Answers

Evaluate parenthesised expressions - Ex10

The examples below are intended to be used as exercises in mental arithmetic and the student should *not* make use of a calculator or other aid. Some of these examples involve the use of parentheses which may control evaluation order.

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| 1. $6^{-2}1296^{1/4}12^2 =$ | 24 | 11. $(196^{1/2})^{1/2}7^{-1}3^2 =$ | 36 |
| 2. $4^{-1/2}9^{3/4}12^{1/2} =$ | 9 | 12. $(512^{1/2})^{-1/3}12^{2/3}3^{-1} =$ | 3 |
| 3. $9^{1/2}18^{1/4}2^{3/4}3^{-3/2} =$ | 6 | 13. $(961)^{1/2}31^{-1}3^4 =$ | 81 |
| 4. $25^{1/2}5^{-2}15625^{1/3} =$ | 5 | 14. $(729)^{1/3}9^{-1}2^4 =$ | 16 |
| 5. $9^332^{-1/5}4^{1/2} =$ | 729 | 15. $8^2(1024)^{-1/2}2^1 =$ | 2 |
| 6. $32^{1/5}4^{1/8}8^{1/4} =$ | 4 | 16. $15^{1/2}25^{3/4}(3^{-1})^{1/2} =$ | 25 |
| 7. $175^{-1/2}343^{1/2}5^2 =$ | 35 | 17. $(12^23^2)^{1/4}5^{24}4^{-1/2} =$ | 75 |
| 8. $(7^2)^{1/4}(343)^{-1/2}14^2 =$ | 28 | 18. $(13^22^3)^{1/3}169^{1/6} =$ | 26 |
| 9. $(11^3)^{-1/3}5^344^{1/4}16^{-1/2} =$ | 125 | 19. $216^{3/4}6^{-1/4} =$ | 36 |
| 10. $(196)^{1/2}14^{-1}2^2 =$ | 4 | 20. $22^2(4^35^3)^{1/3}11^{-1} =$ | 880 |