

NO CALCULATOR!!

Simplify. (Keep in exponential form.)

1. $a^3 \cdot a^4 =$

2. $2^3 \cdot 2^4 =$

3. $(a^3)^4 =$

4. $(5^3)^4 =$

5. $\frac{a^8}{a^2} =$

6. $\frac{4^8}{4^2} =$

7. $\left(\frac{a}{b}\right)^5 =$

8. $(ab)^5 =$

9. $(a^2b^3)^5 =$

10. $(2a^2b^3)^5 \cdot 3a^4b^{10} =$

11. $(9x^8)^{\frac{1}{2}} =$

(#12-20 should not contain exponents.)

12. $25^{\frac{1}{2}} =$

13. $(-27)^{\frac{1}{3}} =$

14. $16^{\frac{1}{4}} =$

15. $4^{\frac{3}{2}} =$

16. $-3^4 =$

17. $(-3)^4 =$

18. $3^{-2} =$

19. $5^0 =$

20. $0^5 =$

Rewrite without negative exponents and simplify:

21. $\frac{x^{-2}y^3}{4^{-\frac{1}{2}}}$