

Use change of base to solve each.

1. $\sqrt[4]{81} = 27^x$

2. $36^x = 6^{x^2-3}$

3. $25^{2m} = 125^{m-3}$

4. $64^{\frac{1}{2}} = 8^x$

5. $(12^5)^x = 12$

6. $5^{3y+4} = 5^y$

7. $2^5 = 2^{2x-1}$

8. $\sqrt[3]{49} = 7^{2x}$

9. $8^{\frac{x}{3}} = (\sqrt[3]{64})^2$

10. $3^{2x-1} = 27$

11. $32^x = 2^{-10}$

12. $125^{x+1} = (\sqrt{25})^5$

Determine if each statement below is true or false. Use must use properties of exponents to justify your answer.

13. $32^{\frac{1}{2}} = 4^{\frac{1}{5}}$

14. $\frac{\sqrt{64}}{\sqrt[3]{8}} = \frac{4^3}{2^4}$