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| 1. Condense the expression into a single logarithm. | 2. Condense the expression into a single logarithm.  |
| 3. Condense the expression into a single logarithm. | 4. Condense the expression into a single logarithm. |
| 5. Expand the expression using the properties of logarithms. | 6. Expand the expression using the properties of logarithms. |
| 7. Expand the expression using the properties of logarithms. | 8. Expand the expression using the properties of logarithms. |
| 9. Expand the expression using the properties of logarithms. | 10. Expand the expression using the properties of logarithms. |
| 11. Rewrite as an exponential | 12. Rewrite as an exponential |
| 13. Rewrite as an exponential | 14. Rewrite as an exponential |
| 15. Rewrite as a logarithm. | 16. Rewrite as a logarithm. |
| 17. Rewrite as a logarithm. | 18. Evaluate without a calculator, show your work! |
| 19. Evaluate without a calculator, show your work! | 20. Evaluate without a calculator, show your work! |