

"Why was Papa Shoe mad at his son?"

Solve each equation. The answer to each problem will match a letter that will allow you to figure out the joke.

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|---|------------------|
| 1. $3^x = 243$ | A: 16 |
| 2. $2^x = \left(\frac{1}{16}\right)$ | W: -7 |
| 3. $\left(\frac{1}{3}\right)^x = 3$ | S: $\frac{7}{2}$ |
| 4. $5^{x+2} = 25^x$ | R: -1 |
| 5. $8^{2x} = 16$ | A: 5 |
| 6. $\left(\frac{1}{27}\right)^4 = 9^{2x}$ | A: -3 |
| 7. $10^{x+3} = 0.0001$ | H: 2 |
| 8. $7^x = 49^8$ | F: $\frac{1}{2}$ |
| 9. $\left(\frac{4}{9}\right)^{x-2} = \frac{8}{27}$ | E: 1 |
| 10. $\left(\frac{1}{2}\right)^{x-2} = 2^x$ | O: -4 |
| 11. $\left(\frac{64}{125}\right)^{2x-8} = \left(\frac{25}{16}\right)^x$ | E: $\frac{2}{3}$ |
| 12. $(2^{3x})(2^{5x}) = 16$ | L: 3 |

4 10 7 1 9 6 11 2 8 12 5 3

Using common bases to solve equations

Joke #12