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"How do you get a baby astronaut to go to sleep?"

Write each expression as a single logarithm. The answer to each problem will match a letter that will allow you to figure out the joke.

1. $\log_3 x + \log_3 y$

D: $\log_4 (x - 8)$

2. $\log_4 x - \log_4 y$

O: $\log_3 x^7$

3. $7\log_3 x$

K: $\log_4 x^3 y^3$

S: $\log_3 x^6$

4. $3\log_3 x + 2\log_3 x$

E: $\log_4 \left(\frac{x}{y} \right)$

C: $\log_3 x^5$

5. $4\log_4 x - 3\log_4 y - \log_4 z$

Y: $\log_4 (x^2 - 4)$

6. $\frac{1}{2} \log_3 x + 6\log_3 y$

O: $\log_3 xy$

A: $\log_4 \left(\frac{1}{xy} \right)$

7. $3(\log_4 x + \log_4 y)$

U: $\log_3 y^6 \sqrt{x}$

8. $\log_4 (x + 2) + \log_4 (x - 2)$

R: $\log_3 \left(\frac{x^2 - 2x + 1}{x} \right)$

9. $2\log_3 (x - 1) - \log_3 x$

W: $\log_4 x^6 y$

T: $\log_4 \frac{x^4}{y^3 z}$

8 3 6 9 1 4 7 2 5

Answer: _____