

Evaluate or simplify each expression. Write the letters above the matching answers to complete the quote by Molière.

EM $3\sqrt[3]{81} - 5\sqrt[3]{24}$

NI $81^{\frac{1}{4}}$

GO $\sqrt[3]{16} - \sqrt[3]{54}$

HE $64^{\frac{3}{2}}$

OT $\sqrt{20} - 3\sqrt{125} + 3\sqrt{80}$

NG $27^{\frac{2}{3}}$

TH $\frac{\sqrt{40}}{\sqrt{8}}$

FC $\sqrt{45} + \sqrt{80}$

IN $\sqrt{12} - \sqrt{27}$

OND $\sqrt{18} - \sqrt{50} + \sqrt{32}$

RS $\left(\frac{1}{9}\right)^{\frac{5}{2}}$

KIN $\left(\frac{27}{125}\right)^{\frac{2}{3}}$

One should examine oneself for a very long time before...

$\sqrt{5}$	$-\sqrt{3}$	$\frac{9}{25}$	$-\sqrt[3]{2}$	$7\sqrt{5}$	$2\sqrt{2}$	$-\sqrt[3]{3}$	3	9	$-\sqrt{5}$	512	$\frac{1}{243}$

Show work here as appropriate:

Simplify:

1. $\left((5)^{\frac{3}{5}}\right)^{\frac{10}{7}}$

2. $6^{\frac{2}{3}} \cdot 6^{\frac{4}{5}}$

3. $\frac{7^{\frac{3}{2}}}{7^{\frac{1}{3}}}$

4. $\sqrt[3]{8x^3y^6}$

5. $\sqrt[3]{40x^{12}y^{16}}$

6. $\sqrt[3]{250} + \sqrt[3]{16}$

(continued on back)

Given $f(x) = 2x - 3$ and $g(x) = 4x$ Perform the indicated operation, then state the domain of the new function:

7. $f(x) - g(x)$

8. $f(x) \cdot g(x)$

Domain:

Domain:

9. $\frac{f(x)}{g(x)}$

10. $f(g(x))$

Domain:

Domain:

11. $g(f(x))$

12. $g(g(x))$

Domain:

Domain:

State the domain of each of the following functions:

13. $f(x) = x^{\frac{2}{3}}$

14. $g(x) = x^{\frac{3}{2}}$

Domain:

Domain:

15. $h(x) = \frac{4}{x^2 - 3x - 4}$

16. $j(x) = \frac{\sqrt[4]{x-2}}{x(2x-1)}$

Domain:

Domain:

Given $f(x) = x^{\frac{3}{4}}$ and $g(x) = x^6$ Perform the indicated operation, then state the domain of the new function:

17. $f(g(x))$

18. $f(f(x))$

Domain:

Domain: