

Algebra 2 Unit 2 Review #2-Show all work.

Rewrite in radical notation.

1. $7^{1/5}$
2. $(-11)^{3/4}$
3. $18^{5/2}$

Evaluate without a calculator:

4. $81^{3/4}$
5. $16^{5/4}$
6. $16^{-5/4}$
7. $\left(\frac{1}{216}\right)^{-1/3}$
8. $8^{-1/3}$

Simplify:

9. $\frac{25^{1/6}}{25^{2/3}}$
10. $\sqrt[3]{40} \cdot 4\sqrt[3]{5}$
11. $\sqrt[3]{81}$
12. $x^{1/3} \cdot x^{1/4}$
13. $\sqrt{64x^{12}}$
14. $\left(\frac{w^{25}}{x^{20}}\right)^{4/5}$
15. $4\sqrt[5]{5} + 8\sqrt[5]{5}$
16. $6\sqrt[7]{3} - 2\sqrt[7]{384}$
17. $\sqrt[4]{18x^8y^9z^3}$

18. Verify if the functions f and g below inverses of each other.

$$g(x) = \frac{1}{3}x - \frac{1}{2}, f(x) = \frac{3}{2}(2x+1)$$

19. Verify if the functions f and g below inverses of each other.

$$f(x) = \frac{2}{3}x - \frac{1}{2}, g(x) = \frac{3}{2}x - \frac{3}{4}$$

20. Sketch the graph of the function $f(x) = \frac{2}{3}x - 2$ and its inverse on the same coordinate plane.

Find the inverse function.

21. $f(x) = x^2 + 5; x \geq 0$
22. $f(x) = \frac{1}{2}x + 2$

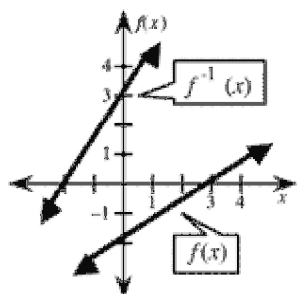
Let $f(x) = x^2 + 2x$ and $g(x) = x + 1$. Perform the indicated operation and state the domain.

23. $f(x) + g(x)$
24. $f(x) - g(x)$
25. $f(x) \cdot g(x)$
26. $\frac{f(x)}{g(x)}$
27. $f(g(x))$

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Answer Section

1. $\sqrt[5]{7}$
2. $\sqrt[4]{11}$
3. $\sqrt[9]{18}$
4. 27
5. 32
6. $\frac{1}{32}$
7. 6
8. $\frac{1}{2}$
9. $\frac{1}{5}$
10. $8\sqrt[3]{25}$
11. $3\sqrt[3]{3}$
12. $x^{\frac{7}{12}}$
13. $8x^6$
14. $\frac{w^{20}}{x^{16}}$
15. $12\sqrt[5]{5}$
16. $2\sqrt[7]{3}$
17. $x^2y^2\sqrt[4]{18yz^3}$
18. Yes
19. No
20. $f^{-1}(x) = \frac{3}{2}x + 3$



21. $f^{-1}(x) = \sqrt{x-5}; x \geq 5$
22. $f^{-1}(x) = 2x - 4$

23. $x^2 + 3x + 1$

Domain: all real numbers

24. $x^2 + x - 1$

Domain: all real numbers

25. $x^3 + 3x^2 + 2x$

Domain: all real numbers

26. $\frac{x^2 + 2x}{x + 1}$

Domain: all real numbers except $x = -1$

27. $x^2 + 4x + 3$

Domain: all real numbers