Practice C

1–6. Show $f(g(x)) = x$ and $g(f(x)) = x$.

7. $f^{-1}(x) = \frac{1}{4} - \frac{1}{4}x$ **8.** $f^{-1}(x) = \frac{1}{3}x - \frac{8}{3}$

9. $f^{-1}(x) = x^2 - 1, x \geq 0$

10. $f^{-1}(x) = \frac{1}{2}x^2 + \frac{3}{2}, x \geq 0$

11. $f^{-1}(x) = 4 - x^2, x \geq 0$

12. $f^{-1}(x) = \frac{1}{5}x^3 + \frac{3}{5}$

13. $f^{-1}(x) = \sqrt{x - 7}; x \geq 7$

14. $f^{-1}(x) = \sqrt[3]{\frac{x - 5}{2}}$

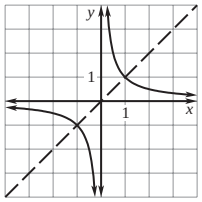
15. $f^{-1}(x) = -|x|, x \geq 0$

16. Restrictions on the domain must be made in inverse functions of all functions where n is even.

17. No. $f^{-1}(x) = \frac{1}{3}x$ and $\frac{1}{f(x)} = \frac{1}{3x} \Rightarrow \frac{1}{3}x \neq \frac{1}{3x}$

$g^{-1}(x) = \frac{3}{2}x$ and $\frac{1}{g(x)} = \frac{3}{2x} \Rightarrow \frac{3}{2}x \neq \frac{3}{2x}$

18.



19. $f(f(x)) = f\left(\frac{1}{x}\right) = \frac{1}{\frac{1}{x}} = x$

20. yes; $f(g(x)) = g(f(x)) = x$ **21.** no **22.** yes

23. yes