PRECAL HONORS

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UNIT 1 REVIEW

Describe a sequence of transformations that will turn the graph of $f(x)$ into the graph of $g(x)$.

1. $f(x)=x^3; g(x)=\left(3(x+2)\right)^3$

2. $f(x)=x^2; g(x)=3x^2+1$

3. $f(x)=\sqrt{x}; g(x)=2\sqrt{x}-1$

4. $f(x)=|x|; g(x)=|3(x+3)|$

Sketch the graph of each function.

5. $y=(x+3)^2+2$

6. $y=\frac{1}{2}|x-2|$

7. $y=|3(x+1)|$

8. $y=\sqrt{x+2}-1$

Perform the indicated operation, and find the domain of the resulting function (where appropriate).

9. $f(x)=x^2+3; g(x)=2x+4$

Find $(f+g)(x)$

10. $h(x)=x+4; g(x)=x^3-3$

Find $(h-g)(x)$

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11. $f(x) = -x + 5; g(x) = 3x^2 + 3x$

Find $(f \cdot g)(x)$

12. $f(x) = 4x + 3; g(x) = x - 3$

Find $\left(\frac{f}{g}\right)(x)$

13. $f(x) = 3x^2 - 2; g(x) = 3x + 5$

Find $\left(\frac{f}{g}\right)(0)$

14. $h(x) = x^2 + 4x; g(x) = 2x + 2$

Find $(h \cdot g)(-6)$

15. $g(x) = 2x - 1; f(x) = 2x + 2$

Find $(g \circ f)(x)$

16. $f(x) = -x + 4; g(x) = x^3 + x$

Find $(f \circ g)(x)$

Find non-trivial functions $f(x)$ and $g(x)$ so that $h(x) = (f \circ g)(x)$.

17. $h(x) = \sqrt{x+1}$

18. $h(x) = \frac{5x+4}{5} + 2$

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Determine if the given functions are inverses.

19. $g(x)=\frac{4}{5}x+\frac{8}{5}; f(x)=-2+\frac{5}{4}x$

20. $g(x)=\frac{x-1}{2}; f(x)=2-\frac{4}{5}x$

Find the inverse of each function.

21. $g(x)=-1+2x^5$

22. $h(x)=\frac{4}{-x+2}$