Use composition of functions to determine whether or not the functions are inverses of each other. Show all work!

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

2) \( g(n) = \frac{-12 - 2n}{3} \)  
   \( f(n) = \frac{-5 + 6n}{5} \)

3) \( f(n) = \frac{-16 + n}{4} \)  
   \( g(n) = 4n + 16 \)

4) \( f(x) = -\frac{4}{7}x - \frac{16}{7} \)  
   \( g(x) = \frac{3}{2}x - \frac{3}{2} \)

5) \( f(n) = -(n + 1)^3 \)  
   \( g(n) = 3 + n^3 \)

6) \( f(n) = 2(n - 2)^3 \)  
   \( g(n) = \frac{4 + 3\sqrt[3]{4n}}{2} \)

7) \( f(x) = \frac{4}{-x - 2} + 2 \)  
   \( h(x) = -\frac{1}{x + 3} \)

8) \( g(x) = -\frac{2}{x} - 1 \)  
   \( f(x) = -\frac{2}{x + 1} \)
Use composition of functions to determine whether or not the functions are inverses of each other. Show all work!

9. Is \( g(x) = \frac{1}{2}x - 2 \) the inverse of \( f(x) = 2x + 4 \)? Justify your answer.
10. Is \( g(x) = 4x + 24 \) the inverse of \( f(x) = \frac{1}{4}x + 6 \)? Justify your answer.
11. Is \( h(x) = x^2 - 2 \) the inverse of \( g(x) = \sqrt{x} + 2 \)? Justify your answer.
12. Is \( h(x) = x^2 \) the inverse of \( g(x) = \sqrt{x} \)? Justify your answer.

13a. Find the inverse of the function: \( h(x) = 6x + 1 \)

b. Use composition of functions to check that the functions are inverses of each other.

14a. Find the inverse of the function: \( h(x) = 4x^2 + 3 \)

b. Use composition of functions to check that the functions are inverses of each other.
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16a. Find the inverse of the function: \( h(x) = \sqrt{x} + 8 \)

b. Use composition of functions to check that the functions are inverses of each other.

17a. Find the inverse of the function: \( h(x) = \sqrt[3]{x} - 3 \)

b. Use composition of functions to check that the functions are inverses of each other.

18a. Find the inverse of the function: \( h(x) = \sqrt[3]{x} + 4 \)

b. Use composition of functions to check that the functions are inverses of each other.
Find the inverse of each function. Graph each function and its inverse. Use composition of functions to check that you determined the correct inverse equation.

19) \( f(x) = -2x^3 + 1 \)

20) \( g(x) = \frac{-x - 5}{3} \)