

# Math 1513 - College Algebra

## Discussion Board Week 8 - Due 2015.10.11

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Each of the following functions  $h$  can be thought of as a composition of two functions,  $f$  and  $g$ . Come up with these two functions, and verify that  $h = f \circ g$ . Note: There may be more than one acceptable answer here.

1.  $h(x) = \sqrt{3x - 5} - 2(3x - 5)$
2.  $h(x) = \frac{1}{3x - 5} + (3x - 5)^2$
3.  $h(x) = 3\sqrt{2x + 1}^3 - 6\sqrt{2x + 1} + 2$
4.  $h(x) = \frac{1}{3 + x^2} + \frac{x^2}{3 - x^2}$
5.  $h(x) = |3x - 1| + 5$
6.  $h(x) = 5(2x - 1)^2 + 3(2x - 1) - 6$
7.  $h(x) = 2^{x^2 - 1} + x^2 - 1$
8.  $h(x) = \frac{5}{(2x + 1)^2} + 4(2x + 1)^3$
9.  $h(x) = (3x + 2)^3 + 3(3x + 2)^2 - 6(3x + 2) + 5$
10.  $h(x) = \sqrt{3(x - 1)^2 + 2(x - 1) - 7}$
11.  $h(x) = \frac{1}{3x^3} + 5x^3 + 2$
12.  $h(x) = 3\sqrt{x^3} - 5\sqrt{x} + \frac{6}{\sqrt{x}} - 1$
13.  $h(x) = \sqrt{2 + x - x^2} + 2 + x - x^2$
14.  $h(x) = \sqrt{5 + 3x} - 6(5 + 3x) - 1$
15.  $h(x) = \frac{1}{x - 5} + (x - 5)^2 + (x - 5) + 2$
16.  $h(x) = \sqrt{3x - 1}^2 - 4\sqrt{3x - 1} - 5$
17.  $h(x) = \frac{1}{3 + x^2} + \frac{x^2}{3 - x^2}$
18.  $h(x) = |3x^2 - x - 6| + 5$
19.  $h(x) = -3(2x^2 - 1)^2 - 2(2x^2 - 1) + 4$
20.  $h(x) = 3^{x^2} + x^2 - 1$
21.  $h(x) = \frac{2x + 1}{(2x + 1)^2 + 4(2x + 1)^3}$
22.  $h(x) = -5(2 - 3x)^3 + 7(2 - 3x)^2 + 7(2 - 3x) + 1$
23.  $h(x) = \sqrt{3(2x + 1)^3 + \frac{2}{(2x + 1)}} - 7$
24.  $h(x) = \frac{1 + x^3}{3x^3} + 5x^3 + 2$
25.  $h(x) = \frac{6\sqrt{x + 1}}{\sqrt{x + 1}} - 1$