

Name: \_\_\_\_\_  
PCH: Decomposition Practice

Date: \_\_\_\_\_  
Ms. Loughran

1. If  $g(x) = -9x + 3$ , find  $f(x)$  so that  $(g \circ f)(x) = -9x^4 + 3$ .

2. If  $g(x) = 3x$ , find  $f(x)$  so that  $(g \circ f)(x) = 3x^2 + 3$ .

3. If  $f(x) = x^2 + 1$ , find  $g(x)$  so that  $(f \circ g)(x) = 4x^2 - 4x + 2$ .

4. If  $f(x) = -3x + 7$ , find  $g(x)$  so that  $(f \circ g)(x) = -6x^2 + 31$ .

5. If  $f(x) = 2x - 5$ , find  $g(x)$  so that  $(f \circ g)(x) = 2x - 1$ .

6. If  $f(x) = x^2 + 7$ , find  $g(x)$  so that  $(f \circ g)(x) = x^2 - 6x + 16$ .

7. If  $f(x) = x^2$ , find  $g(x)$  so that  $(f \circ g)(x) = 16x^2 - 24x + 9$ .

8. If  $f(x) = \sqrt{x - 8}$ , find  $g(x)$  so that  $(f \circ g)(x) = \sqrt{-4x - 6}$ .