

### 3-4 Composition of Functions and Inverses

Name: \_\_\_\_\_

Time Start: \_\_\_\_\_ Finish: \_\_\_\_\_ Total Time = \_\_\_\_\_

Let  $f(x) = 2x + 3$

$g(x) = x - 10$

$h(x) = 3x - 1$

$k(x) = x^2$

\_\_\_\_\_ 1. Find  $f(g(x))$

\_\_\_\_\_ 2. Find  $g(f(x))$

\_\_\_\_\_ 3. Find  $f(h(x))$

\_\_\_\_\_ 4. Find  $f(f(x))$

\_\_\_\_\_ 5. Find  $f(k(x))$

\_\_\_\_\_ 6. Find  $g(h(x))$

\_\_\_\_\_ 7. Find  $h(g(x))$

\_\_\_\_\_ 8. Find  $k(k(x))$

\_\_\_\_\_ 9. Find  $k(g(x))$

\_\_\_\_\_ 10. Find  $g(h(f(x)))$

\_\_\_\_\_ 11. Find  $f(h(g(x)))$

\_\_\_\_\_ 12. If  $f(x) = 3x + 1$ , find the inverse of  $f(x)$ . [Inverse is  $f^{-1}(x)$ ]

\_\_\_\_\_ 13. If  $f(x) = \frac{x+8}{2}$ , find the inverse of  $f(x)$ . [Inverse is  $f^{-1}(x)$ ]

\_\_\_\_\_ 14. If  $f(x) = 5x - 2$ , find the inverse of  $f(x)$ . [Inverse is  $f^{-1}(x)$ ]

\_\_\_\_\_ 15. If  $f(x) = \frac{2x}{3} + 5$ , find the inverse of  $f(x)$ . [Inverse is  $f^{-1}(x)$ ]