

## FUNCTION COMPOSITION: GUIDED NOTES

### Revisit the Coupon Conundrum

If we apply the 20% off coupon first, then the \$10 off coupon, that means that the output of  $f(x)$  becomes the input of  $g(x)$ . In other words, we would have  $g(f(x))$ . Find  $g(f(x))$ .

Now find  $f(g(x))$ . What does it mean, regarding our coupons?

### Composition of Functions Notation

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

read as “ $f$  of  $g$  of  $x$ ” or  
“the composition of  $f$  and  $g$ ”

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### Example Problems

Let  $f(x) = \sqrt{x}$  and  $g(x) = x - 4$ . Perform each of the following operations. Indicate any restrictions in the domain.

1)  $(f \circ g)(x) =$

2)  $(g \circ f)(x) =$

3)  $(f \circ f)(x) =$

4)  $(f \circ g)(20) =$