

# Chapter 1

## Functions and Graphs

### 1.1 Review of Functions

#### Checkpoint 1.6: Application Involving a Composite Function

##### Instruction

If items are on sale for 10% off their original price, and a customer has a coupon for an additional 30% off, what will be the final price for an item that is originally  $x$  dollars, after applying the coupon to the sale price?

##### Solution

Since the sale price 10% off the original price, if an item is  $x$  dollars, its sale price is given by

$$f(x) = 0.90x.$$

Since the coupon entitles an individual to 30% off the price of any item, if an item is  $y$  dollars, the price after applying the coupon, is given by

$$g(y) = 0.70y.$$

Therefore, if the price is originally  $x$  dollars, its price after applying the coupon to the sale price will be

$$(g \circ f)(x) = g(f(x)) = (0.70)0.90x = 0.63x..$$

##### Answer

$$(g \circ f)(x) = 0.63x.$$

### Exercise Solutions