At the point of the call, `first` is copied into `list`. (Pointers, like all arguments, are passed by value.) The last line in the function changes the value of `list`, making it point to the new node. This assignment doesn't affect `first`, however.

Getting `add_to_list` to modify `first` is possible, but it requires passing `add_to_list` a *pointer* to `first`. Here's the correct version of the function:

```
void add_to_list(struct node **list, int n)
{
  struct node *new_node;

  new_node = malloc(sizeof(struct node));
  if (new_node == NULL) {
    printf("Error: malloc failed in add_to_list\n");
    exit(EXIT_FAILURE);
  }
  new_node->value = n;
  new_node->next = *list;
  *list = new_node;
}
```

When we call the new version of `add_to_list`, the first argument will be the address of `first`:

```
add_to_list(&first, 10);
```

Since `list` is assigned the address of `first`, we can use `*list` as an alias for `first`. In particular, assigning `new_node` to `*list` will modify `first`.

17.7 Pointers to Functions

We've seen that pointers may point to various kinds of data, including variables, array elements, and dynamically allocated blocks of memory. But C doesn't require that pointers point only to *data;* it's also possible to have pointers to *functions.* Pointers to functions aren't as odd as you might think. After all, functions occupy memory locations, so every function has an address, just as each variable has an address.

Function Pointers as Arguments

We can use function pointers in much the same way we use pointers to data. In particular, passing a function pointer as an argument is fairly common in C. Suppose that we're writing a function named `integrate` that integrates a mathematical function `f` between points `a` and `b`. We'd like to make `integrate` as general as possible by passing it `f` as an argument. To achieve this effect in C, we'll declare `f` to be a pointer to a function. Assuming that we want to integrate functions that have