Problems

Suppose we’re designing an point-of-sale and order-tracking system for Wendy’s. Luckily the Uber-Qwuick drive through supports only 4 options: Classic Single Combo (hamburger with one patty), Classic Double With Cheese Combo (2 patties), and Classic Triple with Cheese Combo (3 patties), Avant-Garde Quadruple with Guacamole Combo (4 patties). We shall encode these combos as 1, 2, 3, and 4 respectively. Each meal can be biggie-sized to acquire a larger box of fries and drink. A biggie-sized combo is represented by 5, 6, 7, and 8 respectively.

1. Write a procedure named biggie-size which when given a regular combo returns a biggie-sized version.

2. Write a procedure named unbiggie-size which when given a biggie-sized combo returns a non-biggie-sized version.

3. Write a procedure named biggie-size? which when given a combo, returns true if the combo has been biggie-sized and false otherwise.

4. Write a procedure named combo-price which takes a combo and returns the price of the combo. Each patty costs $1.17, and a biggie-sized version costs $.50 extra overall.

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1 6.001 and MIT do not endorse and are not affiliated with Wendy’s in any way. They merely capitalize on the pleasant way “biggie-size” rolls off the tongue.
5. An order is a collection of combos. We’ll encode an order as each digit representing a combo. For example, the order 237 represents a Double, Triple, and biggie-sized Triple.

   Write a procedure named empty-order which takes no arguments and returns an empty order.

6. Write a procedure named add-to-order which takes an order and a combo and returns a new order which contains the contents of the old order and the new combo. For example, (add-to-order 1 2) -> 12.

7. Write a procedure named order-size which takes an order and returns the number of combos in the order. For example, (order-size 237) -> 3. You may find quotient (integer division) useful.

8. Write a procedure named order-cost which takes an order and returns the total cost of all the combos. In addition to quotient, you may find remainder (computes remainder of division) useful.