

7. Display 6.8 describes a 5% sales tax function. This is actually a composite $r \circ p$ of two functions, a percentage function p and a rounding function r .
- (a) Explain in your own words how p and r work on the sales amounts from \$0.01 to \$1.00.
- (b) Using the upper part of Display 6.8 as a model, define a 7% sales tax function for all sales amounts from \$0.01 to \$1.00. Describe this tax function first as a composite of a percentage function and a rounding function; then make a table for it.

5% Sales Tax Schedule		
<u>Sale</u>		<u>Tax</u>
<u>From</u>	<u>To</u>	
\$0.01	\$0.09	\$0.00
0.10	0.01	0.01
0.30	0.02	0.02
0.50	0.03	0.03
0.70	0.04	0.04
0.90	0.05	0.05

The tax to be collected is the amount indicated for each dollar of the sale price plus the amount indicated above for any fraction of a dollar.

Top Part of Display 6.8

8. (a) Is function composition commutative? How would you convince someone that your answer is correct?
- (b) Is function composition associative? How would you convince someone that your answer is correct?