

Some Modeling

1. Alisha went to Europe last summer. She discovered that when she exchanged her U.S. dollars for euros, she received 25% fewer euros than the number of dollars she exchanged. When she returned to the United states, she got 25% more dollars than the number of euros she exchanged.
 - (a) Write each conversion function
 - (b) Are the two functions inverses?
2. The printing and binding cost for a college algebra book is \$10. The editorial cost of \$200,000. The first 2500 books are samples and are given free to professors.
 - (a) Write a function f describing the average cost of saleable books.
 - (b) Find the average cost of a sateable book if 10,000 books are produced.
 - (c) How many books must be produced to bring the average cost of a saleable book under \$20?
 - (d) Find the vertical asymptote os the graph of $y = f(x)$. How does it relate to this situation?
3. A square piece of a tin 18 inches on each side is to be make into a box, without a top, but cutting a square from each corner and folding up the flaps to corm the sides.
 - (a) Find the volume v of the box as a function of the length of the squares removed from the corners.
 - (b) What size corners should be cut so that the volume of the box is 432 cubic inches?