CSE 321: Discrete Structures **Winter 2000**

Assignment #2

Due in class: Wednesday, January 19

1. Section 1.4 Exercise 10

2. Section 1.5 Exercise 14

3. Section 1.5 Exercise 16

4. Section 1.6 Exercise 12
   [In addition, as part (e) find a function from $\mathbb{N}$ to $\mathbb{N}$ that is injective but *not* strictly increasing.]

5. Section 1.6 Exercise 26
   [Be careful here. This may be more difficult than it looks. In particular, note exercise 27 and be certain that you do not make a claim to show something that is false. The key stems from the following logical identies and logical implications:

$$\exists x(P(x) \vee Q(x)) \iff \exists x P(x) \vee \exists x Q(x)$$
$$\forall x(P(x) \wedge Q(x)) \iff \forall x P(x) \wedge \forall x Q(x)$$
$$\exists x(P(x) \wedge Q(x)) \implies \exists x P(x) \wedge \exists x Q(x)$$
$$\forall x(P(x) \vee Q(x)) \impliedby \forall x P(x) \vee \forall x Q(x)$$

   You may use any of these as part of your solution.]