

1. Exercise 1.2.13(b) (Section 1.2, Exercise 13(b), p. 32) [5 points]
2. Exercise 1.2.25 (p. 34) [10]
3. 1.2.18 (p. 33) [10]
4. 1.2.29(d) (p. 35) [10]
5. 1.2.30 (p. 35) [10]
6. 1.3.19(b) (p. 54) [10]
7. 2.1.12(b) (p. 89) [5]
8. 2.1.19(b,d) [10]
9. 2.3.15(b) [5]
10. [5] Give an example of a (partial) function (a) from \emptyset to **nat**; (b) from **nat** to \emptyset .
11. [20] Show that the intersection and union of two binary relations on $A \times B$ are relations. Show that the complement of a relation is a relation. Is the intersection of two functions a function? Is the union of two functions a function? Is the complement of a function a function? (In each case, prove it or give a counterexample.)