1.8.2 Use Venn diagrams (supplemented with verbal explanations, as necessary) to demonstrate that $(A - B) \cap (B - A) = \emptyset$; that is, $A - B$ and $B - A$ are disjoint.

1.8.3 One might be tempted to think $|A \cup B| = |A| + |B|$, but this is not true in general. Why not? (In mathematics, "in general" means "always.") Under what special circumstances is it true? (Assume A and B are finite.)

1.9.5 Based on our description of the real number plane as a Cartesian product, explain how a line can be interpreted as a set.

1.9.6 Explain how $\mathbb{C}$, the set of complex numbers, can be thought of as a Cartesian product.

1.9.7 Any rational number (an element of set $\mathbb{Q}$) has two integers as components. Why not rewrite fractions as ordered pairs (for example, $\frac{1}{2}$ as $(1, 2)$ and $\frac{3}{4}$ as $(3, 4)$) and claim that $\mathbb{Q}$ can be thought of as $\mathbb{Z} \times \mathbb{Z}$? Explain why these two sets *cannot* be thought of as two different ways to write the same set. (There are at least two reasons.)