

## Worksheet §1.5-1.7

1. In  $\mathbb{R}^2$ , sketch

$$([0, 1] \times [1, 2]) \cap \{(x, 2x + 1) : x \in \mathbb{R}\}$$

2. In  $\mathbb{R}^2$ , sketch

$$(\{(x, y) : x \geq y - 1\} \cap \{(y, x) : y \leq x + 1\}) \cup \{(u, v) : u^2 + v^2 \leq 1\}.$$

3. Now sketch

$$(\{(a, b) : b \geq |a|\} \cap \{(c, d) : d \leq 4\}) - \{(e, f) : f \geq |e| + 1\}.$$

4. Finally, sketch

$$\{(x, y) : x^2 + (y - 2)^2 = 9\} \cup \{(y, 3) : y^2 = 4\} \cup (\{(x, y) : y = x^2\} \cap \{(x, y) : |x| \leq 1\}).$$