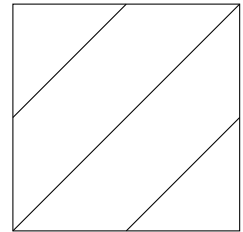
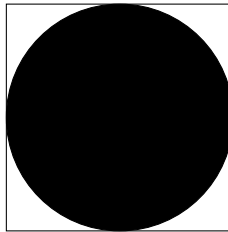
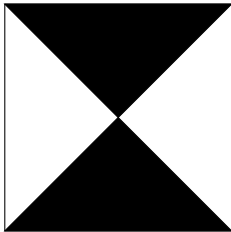


MATH 61-02: WORKSHEET 7 (§5.1-5.2)

(W1) Let R be the relation on the interval $[0, 1]$ defined by xRy if and only if $x^2 \leq y$. Sketch the graph of R . Decide if it is reflexive, symmetric, transitive, and/or anti-symmetric.

(W2) For each of the following relations on $[0, 1]$, decide whether it is reflexive, symmetric, and/or anti-symmetric.
(Bonus: also decide whether each is transitive, and use that to identify which are equivalence relations and which are partial orders.)



(W3) Consider the relation on $A = \mathbb{Z} \times (\mathbb{Z} \setminus \{0\})$ given by $(a, b)F(c, d) \iff ad = bc$. Check that it is an equivalence relation. Give several elements of the equivalence classes $[(0, 1)]$ and $[(2, 3)]$ in the associated partition. Sketch A and show a few blocks of the partition in your picture.

(W4) Give a relation R on $A = \{blue, red, yellow, green\}$ that is reflexive but not transitive. What is the smallest number of elements $|R|$ required to achieve this?