1a. Union of R1 and R2: {(3, 3), (1, 2), (2, 2), (1, 1), (1, 3), (1, 4)}
1b. Intersection of R1 and R2: {(1, 1)}
1c. R1 - R2: {(3, 3), (2, 2)}
1d. R2 - R1: {(1, 2), (1, 3), (1, 4)}
2. S ◦ R: {(2, 1), (3, 1), (1, 1), (3, 0), (2, 2), (1, 0)}
3. R^2: {(2, 4), (2, 1), (3, 4), (3, 1), (1, 1), (1, 4)}
4a. Show R as a set of ordered pairs {(5, -5), (-10, 10), (-3, 3), (-4, 4), (-1, 1), (3, -3), (4, -4), (-6, 6), (10, -10), (-5, 5), (2, -2), (-7, 7), (8, -8), (9, -9), (0, 0), (1, -1), (6, -6), (-9, 9), (7, -7), (-8, 8), (-2, 2)}
4b. Is R reflexive? False
4c. Is R symmetric? True
4d. Is R antisymmetric? False
4e. Is R transitive? False