

Section 1

1. A *Venn diagram* is a diagram that shows all hypothetically possible logical relations between a finite collection of sets.

Draw Venn diagrams for three and four sets.

2. Using Venn diagrams, show that the following are true for any sets A , B and C :

(a) $A - B = A - (A \cap B)$

(b) $A - (B - C) = (A - B) \cup (A \cap C)$

(c) $A - (B \cup C) = (A - B) \cap (A - C)$

By the correspondence discussed above, these three equalities correspond to tautologies on propositions P, Q, R . What are they?