

MTH 1250

Homework #3

“Venn Diagrams”

1. There are 120 students taking both Chemistry and Physics this semester. Based on previous years, it is predicted that 30 students will fail both courses; 60 students will pass Chemistry, but fail Physics; and 12 students will pass Physics, but fail Chemistry. Draw a Venn diagram for this problem and determine the number of students that are predicted to pass both courses.
2. After running 100 mice through a Y-shaped maze an experimental psychologist reports the following data: 50 mice were male; 50 were previously trained; 42 turned left; 21 were previously trained males; 7 males turned left; 30 previously trained mice turned left and 5 previously trained males turned left. Draw an appropriate Venn diagram and calculate the following:
 - (a) How many previously trained female mice turned left?
 - (b) How many female mice turned right?
3. Excluding the crew, a transcontinental airliner is carrying 18 boys, 178 men, 10 American males, 2 American boys, 26 Americans and 24 non-American females. How many passengers are female?
4. In a third-year mathematics class, 60% of the students are female. Some of the students use a pencil to take notes and the rest use a pen. If 35% of the class is made up of females who use a pencil, and 15% of the class are males that use a pen, then what percentage of the class use a pencil to take notes? Are the events “a student in the class is male” and “a student in the class uses a pencil” mutually exclusive?