

- 1) A technician has to check the suitability of 3 solid crystals lasers and 2 carbon dioxide laser for a given task.
 - i) Using two coordinates so that (2,1), for example represents the event that the technician will find two of the solid crystal lasers and one of the carbon dioxide lasers suitable for the task. List the sample space.
 - ii) If E is the event that equally many solid crystal lasers and carbon dioxide lasers are suitable for the task, and F is the event that none of the carbon dioxide crystals are suitable for the task, and G is the event that fewer solid crystal lasers than carbon dioxide lasers are suitable for the task. List the elements of each of these events.
 - iii) Which of the pairs of events, E and F, E and G, and F and G are mutually exclusive?
- 2) True or False? And Why?
 - i) The probability that a mineral sample will contain silver is 0.38 and the probability that it will not contain silver is 0.52.
 - ii) The probability that a drilling operation will be a success is 0.73 and the probability that it will not be a success is - 0.27.
 - iii) An air-conditioning repairman claims that the probability is 0.82 that the processor is defective, 0.64 that the fan motor is defective, and 0.41 that both are defective.
- 3) The probability that a projector will have a defective lens is 0.12, the probability that it will have a crack defect is 0.29, and the probability that it has both defects is 0.07.
 - i) What is the probability that a newly manufactured projector will have either a defective lens or a crack defect?
 - ii) What is the probability that a newly manufactured projector will have neither defect?
 - iii) What is the probability that a newly manufactured projector has exactly one of the two defects?
- 4) At an electronics plant, it is known from past experience that the probability is 0.86 that a new worker who has attended the company's training program will meet the production quota and the corresponding probability is 0.35 for a new worker who has not attended the company's training program.
 - i) If 80% of all new workers attend the training program, what is the probability that a new worker will meet the production quota?
 - ii) Find the probability that a new worker who meets the production quota will have attended the company's training program.
- 5) An importer is offered a shipment of machine tools for SR 140,000, and the probabilities that he will be able to sell them for SR 180,000, SR 170,000 or SR150,000 are 0.32, 0.55 and 0.13. What is the importer's expected profit?