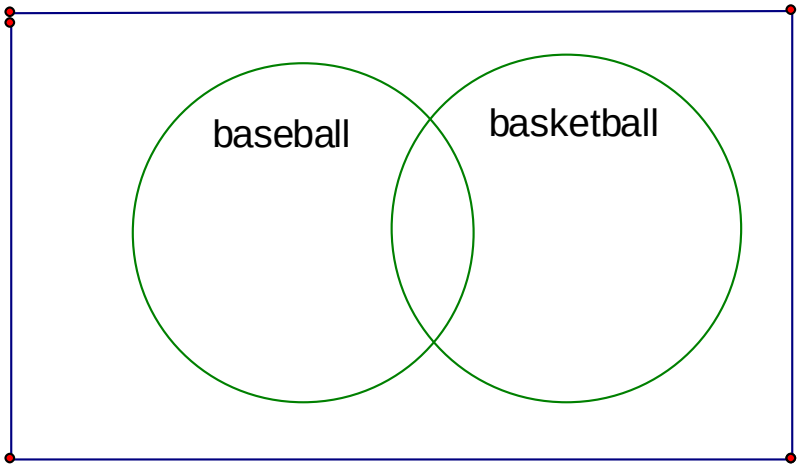
Probability

Name:

1. A class of 50 students were surveyed and asked if they played basketball and or baseball. Of the 50 students 29 said that they played baseball, 16 said that they played basketball, and 10 played both baseball and basketball. Complete the Venn diagram and answer the questions given below.



(a) What is the probability that a randomly selected student plays baseball?

(b) What is the probability that a randomly selected student plays baseball given that the student plays basketball?

(c) What is the probability that a randomly selected student plays neither sport?

(d) What is the probability that a randomly selected student plays basketball given that the student plays baseball?

2. Suppose three balls are to be randomly drawn (without replacement), one after the other, from a container holding 5 red balls, 3 white balls, and 2 green balls. Calculate the following probabilities.

   (a) P(all three are red) =

   (b) P (all three are green) =

   (c) P (all three are white) =

   (d) P (all three balls are the same color) =

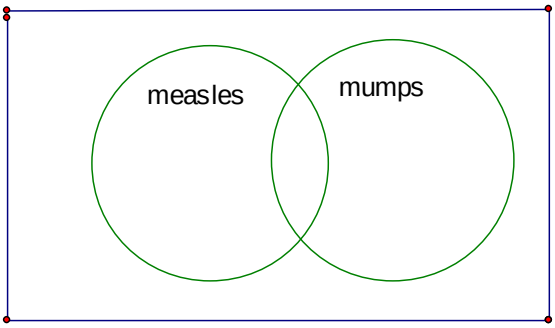
   (e) P (all three balls are different colors) =

   (f) P(that the third ball is green given that the first two are not green) =

   (g) P (all three are red given that they are all the same color) =

3. The medical records for a class of 30 children showed that 24 had previously had measles, 12 had previously had measles and mumps, and 26 had previously had at least one of measles or mumps.

(a) Complete the Venn diagram below.



(b) If one child from the class above is selected at random, determine the probability that he or she had:

(i) mumps

(ii) mumps but not measles

(iii) neither mumps nor measles

(iv) measles if it is known that the child has had mumps

4. Two cards are dealt from a standard 52 card deck (without replacement). Find the following probabilities.

(a) $P(black, black) =$

(b) $P(2nd\ card\ is\ a\ jack\ 1st\ card\ is\ a\ jack)$

(c) $P(both\ are\ face\ cards)$

(d) $P(both\ same\ suit) =$

(e) $P(two\ of\ a\ kind) =$

Challenge

P (the sum of the two cards is at least 17)