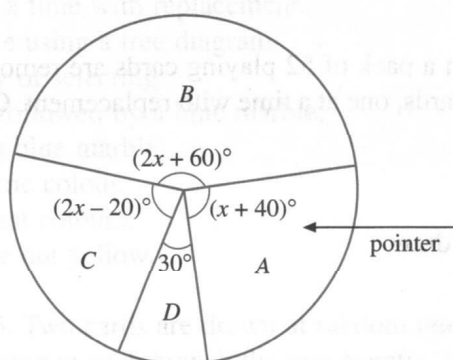


15. The face of a circular disk is divided into sectors A, B, C and D as shown in the figure below.



- Find the value of x .
 - Which sector is the pointer least likely to indicate each time the disk is spun?
Explain your answer.
 - The disk is spun twice and the sector that the pointer indicates is noted after each spin. Calculate the probability that the pointer
 - will indicate the same sector each time,
 - will indicate a different sector each time.
 - Calculate the probability that the pointer will indicate the sector stated in (b) in at least one of 2 spins.
16. (a) A coin is drawn at random from w ten-cent coins, x fifty-cent coins and 8 one-dollar coins. The probability of drawing a ten-cent coin or a fifty-cent coin is $\frac{1}{2}$. The total value of all the coins is \$10.
- Form a pair of simultaneous equations involving w and x .
 - Solve the simultaneous equations to find the values of w and x .
- (b) If instead two coins are drawn at random one at a time without replacement, calculate the probability of drawing 2 coins that is worth at least \$0.60 in total.
17. A clip dispenser contains m paper clips of which 6 are red and the rest are green. Two paper clips are selected at random, one at a time without replacement. The probability of selecting 2 red paper clips is $\frac{1}{3}$.
- Form an equation in m and show that it can be reduced to $m^2 - m - 90 = 0$.
 - Solve the equation $m^2 - m - 90 = 0$.
 - Hence, write down
 - the total number of paper clips in the clip dispenser initially,
 - the number of green paper clips in the clip dispenser.
18. A batch of 10 components will be rejected upon first detecting a faulty component in a random test of 3 components, one after another without replacement. Suppose that there are 4 faulty components in a particular batch.
- Draw a tree diagram to represent the testing process, showing at each branch the two events: 'faulty' and 'good'.
 - Hence, calculate the probability of
 - rejecting the batch after testing one component,
 - rejecting the batch after testing two components,
 - not rejecting the batch.