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Solution
a. Sample Space ω=52
Number of Queen Cards=4 Diamond,Spade,Club and Heart.
Probability of Drawing a Queen
=Number of queen cards n(Q)/Sample Space(ω)
=4÷52 =1÷13

b. Let A be equal to number of "Queen" cards in the set of playing cards. n(A)=4
   Let n=number of elements in the given set.
   Let B be equal to the number of cards belonging to the "Hearts" n(B)=13

Since there is a single Queen belonging to "Hearts", n(A∩B)=1
If probability of drawing a Queen given that the card drawn is of "Hearts" =
P(A—B)
P(A—B)=1/13

c.Let Q=number of times the Queen card can be drawn; n(Q)=4 (let n=number
of elements in a given set)
Let F=(number of face cards that can be drawn),n(F)=12 (4 queens,4 kings,4 jack
cards)
Since each suit has one queen face and there are 4 suits, this means that there
are 4 cards in the 12 face cards; n(Q∩F)=4
Therefore Probability of drawing a Queen given that the card drawn is a face card;
P(Q—F)
=4 / 12
=1 / 3