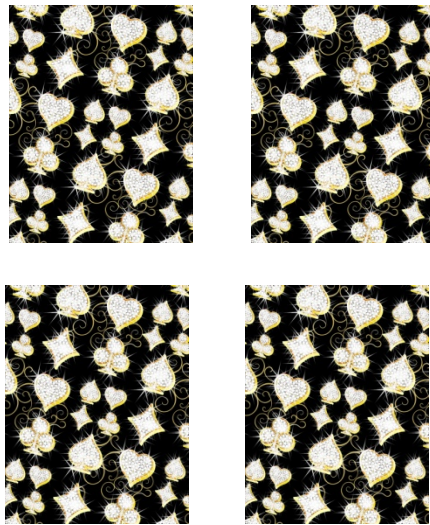


## The Queen's Card Trick

Start by shuffling a standard deck of cards a number of times.

Place the deck face down on a table and ask a student to take three quarters of the deck and place it in a different pile. Then ask the student to take half of that pile and place it in a different pile. Then ask the student to take half of that pile and place it in a different pile. The deck should now be separated into four stacks of cards approximately the same size as shown below.



Now further mix up the cards by asking a student to move the top card of one stack onto the top of another. Repeat this numerous times.

Once the cards are mixed the right way (see secret to this trick on next page) ask the students what the probability is that the top card on one of the stacks is a queen. Express the answer as a fraction, decimal and percentage. Flip the card to show that it is a queen.

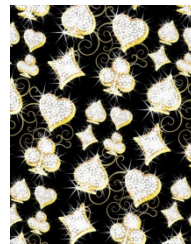
Repeat this for each of the stacks and be amazed.

**Warning: Spoiler on next page!**

## The Secret to The Queen's Card Trick (Spoiler Alert)

Start by shuffling a standard deck of cards a number of times. **Make sure that you prepare the deck ahead of time so that the four queens are on the very top of the deck. When you shuffle make sure that the queens stay on top.**

Place the deck face down on a table and ask a student to take three quarters of the deck and place it in a different pile. Then ask the student to take half of that pile and place it in a different pile. Then ask the student to take half of that pile and place it in a different pile. The deck should now be separated into four stacks of cards approximately the same size as shown below. **The last stack will have all four queens on the top because of the pre-arranged deck.**



All Queens on top  
of last pile!

Now further mix up the cards by asking a student to move the top card of one stack onto the top of another. Repeat this numerous times. **You know where all the queens are so mix up the cards so that the queens get distributed to the top of each stack.**

Once the cards are mixed the right way (**a queen on the top of each stack**) ask the students what the probability is that the top card on one of the stacks is a queen. Express the answer as a fraction, decimal and percentage. Flip the card to show that it is a queen.

Repeat this for each of the stacks and be amazed.