Card Sharp

You need: a pack of 52 cards, a calculator, a classmate

ACTIVITY

Ma'afala and Uiti often play card games on wet lunchtimes. Today, they shuffle the 52 cards, put them face down in a pile, and guess what sort of card the top card might be. Here are 8 of their guesses. As they know, not all probabilities are equal.

It'll be a 7.

It'll be a number card that's even.

It'll be a red spade.

It'll be a king or a queen.

It'll be a 4 or a heart.

It'll be a black card numbered 1, 2, or 3.

It'll be red or an ace.

It'll be red or black.

Work with a classmate.

1. Draw up a number line that goes from 0 to 1.
   a. Calculate the probability for each of the above events (outcomes). Mark where they belong on the number line.
   b. Think of another 5 card events. Work out the probabilities and mark them on the number line too.

2. Ma'afala and Uiti notice that the word "or" appears often in their guesses. Calculate the probability of getting:
   a. a 5; a 6; either a 5 or a 6
   b. an ace; a diamond; either an ace or a diamond
   c. a jack; a heart; a black card; either a jack or a heart or a black card.

3. What happens to probabilities when the word "or" is included?

4. Check out what happens to probabilities when the word "and" is included. For example: "a card that is red and a 10" (a red 10).