

**21** There are only red counters, yellow counters and blue counters in a bag.

Kevin takes at random a counter from the bag.

He puts the counter back in the bag.

Lethna takes at random a counter from the bag.

She puts the counter back in the bag.

The probability that both counters are red or that both counters are yellow is  $\frac{13}{36}$

The probability that the first counter is red and the second counter is not red is  $\frac{1}{4}$

Seb takes at random a counter from the bag.

Work out the probability that Seb takes a yellow counter.

You must show all your working.

$$P(R)(1 - P(R)) = \frac{1}{4} \Rightarrow P(R) = \frac{1}{2}$$

$$P(R)^2 + P(Y)^2 = \frac{13}{36} \Rightarrow P(Y) = \sqrt{\frac{13}{36} - \frac{1}{4}} = \frac{1}{3}$$