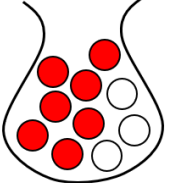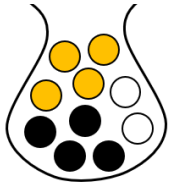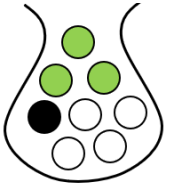# Theoretical Probability with Counters

| A bag contains 7 red counters and 3 white counters. A counter is chosen at random.  | **(a)** What is the probability that a white counter is chosen? | **(b)** What is the probability that a black counter is chosen? | **(c)** What is the probability that the counter chosen is not white? | **(d)** How many white counters would need to be added to the bag to make the probability of choosing a white counter equal to $\frac{1}{2}$? |
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| A bag contains 2 white counters, 4 orange counters and 4 black counters. A counter is chosen at random.  | **(e)** What is the probability that a black counter is chosen? | **(f)** What is the probability that a white or orange counter is chosen? | **(g)** What is the probability that the counter chosen is not white? | **(h)** How many black counters would need to be added to the bag to make the probability of choosing a black counter equal to $\frac{1}{2}$? |
| A bag contains 1 black counter, 3 green counters and 4 white counters. A counter is chosen at random.  | **(i)** What is the probability that a white counter is chosen? | **(j)** What is the probability that a green, white or black counter is chosen? | **(k)** What is the probability that the counter chosen is not black? | **(l)** How many white counters would need to be added to the bag to make the probability of choosing a white counter equal to $\frac{2}{3}$? |

| **Bag A** contains 7 blue counters and 5 red counters. The rest of the counters are white.<br><br>**Bag B** contains 3 blue counters, 2 white counters and 5 red counters. | **(m)** The probability of choosing a blue counter from bag A is 0.35. What is the total number of counters in bag A? | **(n)** Ali takes a counter at random from bag A. Ben takes a counter at random from bag B. Who has the greater probability of taking a blue counter? | **(o)** How many red counters does Ben need to add to bag A to make the probability of choosing a red counter from bag A the same as from bag B? |
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