



## QT Probability Equations

1. There are some green counters and white counters in a bag.  
The ratio of green counters to white counters is 4:1.  
Two counters are removed at random.

The probability that both the counters are white is  $\frac{1}{30}$

How many counters were in the bag before any counters were removed?



2. There are 5 green counters and  $x$  white counters in a bag.  
Two counters are removed at random.

The probability that one counter is green, and the other counter is white is  $\frac{6}{11}$

How many white counters were in the bag before any were removed?



3. There are  $x$  pens in a box.

8 of the pens are blue, and the rest are red.

Ahmed takes a random pen from the box and does not replace it.

He then takes another random pen from the box.

The probability that Ahmed takes two red pens is  $\frac{1}{5}$

(a) Show that  $x^2 - 21x + 90 = 0$

(b) Find the value of  $x$