

Name: _____

ASM Tuition Academy
PROBABILITY EQUATIONS

Instructions:

- Use **black** ink or ball-point pen.
- Answer all questions.
- Answer the questions in the spaces provided
- there may be more space than you need.
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all you're working out**.

Information:

- The marks for each question are shown in brackets
- use this as a guide as to how much time to spend on each question.

Advice:

- Read each question carefully before you start to answer it.
- Keep an eye on time.
- Try to answer every question.
- Check your answers if you have time at the end.

Q1- There are some White counters and some green counters in a bag.

The ratio of White counters to green counters is 3:1.

Two counters are removed at random.

The probability that both the counters taken are Green is $\frac{1}{20}$

Work out how many counters were in the bag before any counters were removed.

(Total for Question 1 is 5 marks)

Q2- Here are some White counters and some green counters in a bag.

The ratio of White counters to green counters is 4:1.

Two counters are removed at random.

The probability that both the counters taken are White is $\frac{22}{35}$

Work out how many green counters are in the bag.

(Total for Question 2 is 5 marks)

Q3- There are 5 White counters and x green counters in a bag.

Ayesha takes a counter from the bag at random.

She puts the counter back into the bag.

Ayesha then takes another counter at random from the bag.

The probability that the first counter she takes is White and the second counter she takes is White is $\frac{1}{9}$

Work out how many green counters are in the bag.

(Total for Question 3 is 5 marks)

Q4- There are 4 White counters and y green counters in a bag.

2 counters are removed from the bag at random.

The probability that both the counters taken are green is $\frac{1}{3}$

Work out the value of y

(Total for Question 4 is 6 marks)

Q5- There are 5 White counters and y green counters in a bag.

2 counters are removed from the bag at random.

The probability that both the counters taken are White is $\frac{5}{33}$

Work out the value of y .

(Total for Question 5 is 7 marks)

Q6- There are x counters in a bag.

4 of the counters are White and the rest are green.

Ali takes a counter from the bag at random and does not replace it. He then takes another counter at random from the bag.

The probability that Ali takes two green counters is $\frac{1}{3}$

(a) Show that $x^2 - 13x + 30 = 0$

(b) Find the value of x

(Total for Question 6 is 7 marks)

Q7- There are y counters in a bag.

8 of the counters are White and the rest are green.

Asim takes a counter from the bag at random and does not replace it.

He then takes another counter at random from the bag.

The probability that Asim takes two green counters is $\frac{1}{5}$

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

(b) Find the value of y

(Total for Question 7 is 7 marks)