GCSE FOUNDATION · REVISION MAT 4

Probabilities that add to 1

1 The probability that a seed grows is 0.83.

Work out the probability that it does **not** happen.

2 The table shows the probabilities for a biased spinner.

Outcome	Win	Draw	Lose
Probability	0.45		0.3

Work out the missing probability.

3 Dan says the probabilities of the three outcomes of an experiment are 0.15, 0.45, 0.3.

Explain why Dan must be wrong.

4 A spinner can land on X, Y or Z.
$P(X) = 3x$, $P(Y) = 2x$, $P(Z) = 0.5$

Show that $x = 0.1$

5 A spinner can land on X, Y or Z.
$P(X) = 3x$, $P(Y) = 2x$, $P(Z) = 0.5$

The spinner is spun 40 times.

How many times would you expect it to land on Y?

6 A bag has 50 counters.
They are red, blue or green.
P(red) = 0.4.
There are 2 times as many blue counters as green counters.

How many counters of each colour are there?

Mr&Mrs MATHS

ANSWERS · REVISION MAT 4

Probabilities that add to 1

1 $1 - 0.83 = \mathbf{0.17}$

2 $1 - (0.45 + 0.3) = \mathbf{0.25}$

3 The probabilities of all the outcomes must add up to 1.

$0.15 + 0.45 + 0.3 = 0.9$, which is less than 1.

4 $5x + 0.5 = 1$

$5x = 0.5$

$x = \mathbf{0.1}$ ✓

5 $x = 0.1$, so P(Y) = 0.2

$0.2 \times 40 = \mathbf{8}$

6 Red: $0.4 \times 50 = 20$

Blue and green: 30, split 2 : 1

Blue **20**, green **10**, red **20**