GCSE HIGHER · REVISION MAT 3

Probabilities that sum to 1

1 P(late) = 0.12.

Find P(on time).

2 Find x.

Colour	Red	Blue	Green	Yellow
Probability	0.3	x	0.25	0.1

3 Explain why P(red) + P(not red) = 1.

4 A biased coin is 3 times as likely to land heads as tails.

Find P(head).

5 Show that 0.2, 0.35, 0.15 and 0.3 could be the probabilities of the four outcomes of a spinner.

6 A raffle sells 500 tickets.

Kim's probability of winning first prize is 0.03.

How many tickets did she buy?

7 Explain why the outcomes must be mutually exclusive for their probabilities to add to 1.

8 The only outcomes are A, B and C.

P(A) = $2x$, P(B) = $x + 0.1$ and P(C) = $3x - 0.1$.

Find P(C).

Mr&Mrs MATHS

ANSWERS · REVISION MAT 3

Probabilities that sum to 1

1 0.88

2 $x = 0.35$

3 'Red' and 'not red' cover every outcome with no overlap.

4 $3p + p = 1$

P(head) = 0.75

5 All are between 0 and 1, and they add to 1.

6 0.03 × 500 = 15

7 If they overlap, some outcomes are counted twice.

8 $6x = 1 \Rightarrow x = \frac{1}{6}$

P(C) = 0.4