GCSE HIGHER · REVISION MAT 1

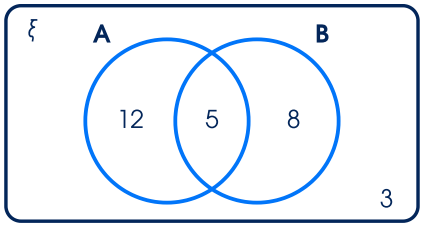
Conditional probability

1 A girl is chosen at random.

Find P(she likes sport).

	Likes sport	Does not	Total
Boys	18	12	30
Girls	14	16	30
Total	32	28	60

2 Find P(A | B).



3 Explain the difference between P(A and B) and P(A | B).

4 A bag has 5 red and 3 blue sweets.

Two are taken without replacement.

Find P(second is red | first is red).

5 P(A) = 0.4 and P(A ∩ B) = 0.1.

Show that P(B | A) = 0.25.

6 Two fair coins are flipped.

Given that at least one is a head, find P(both are heads).

7 Show that liking sport is not independent of gender.

	Likes sport	Does not	Total
Boys	18	12	30
Girls	14	16	30
Total	32	28	60

8 2% of people have a condition.

A test is positive for 95% of people with it and 10% of people without it.

Find

P(has the condition | positive test).

Mr&Mrs MATHS

ANSWERS · REVISION MAT 1

Conditional probability

1 $\frac{14}{30} = \frac{7}{15}$

2 n(B) = 13

$\frac{5}{13}$

3 **P(A and B) is out of everything; P(A | B) is out of only the outcomes where B happens.**

4 4 red left out of 7

$\frac{4}{7}$

5 $\frac{P(A \cap B)}{P(A)} = \frac{0.1}{0.4}$

= 0.25

6 HH, HT, TH remain

$\frac{1}{3}$

7 P(likes | boy) = 0.6

P(likes | girl) = 0.47

They are different.

8 P(positive) = 0.019 + 0.098 = 0.117

$\frac{0.019}{0.117}$ **= 0.162**

Mr&Mrs MATHS