

# Summer Term Maths Year 10

Day  
3

Week 9

Use two way tables to compare probabilities

1 Mo and Rosie each flip a coin.  
Mo flips his coin 20 times.  
Rosie flips her coin 100 times.

- (a) How many times would you expect each of them to get heads?  
**Mo: 10 times**  
**Rosie: 50 times**
- (b) The two way table shows the results.

	Heads	Tails	Total
Mo	5	15	20
Rosie	48	52	100
Total	53	67	120

Do you think the coins are fair?  
Explain your answer.

No, Mo's coin is possibly biased as there are significantly more results for tails than heads.

2 Students in Year 7 were asked how they travel to school.

The table below shows the results of the survey.

	Walk	Bus	Car	Total
Boy	13	24	30	67
Girl	10	23	35	68
Total	23	47	65	135

A student is picked at random.

Work out the following probabilities.

- (a)  $P(\text{a girl who walks}) = \frac{10}{135}$   **$\frac{43}{135}$**
- (b)  $P(\text{a boy who does not get the bus}) = \frac{54}{135}$
- (c)  $P(\text{a student who travels by car}) = \frac{65}{135}$

**$\frac{65}{135}$**

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**3** Katie observes the first 150 customers in a shop and notes if they wear glasses or not.

A customer is chosen at random.

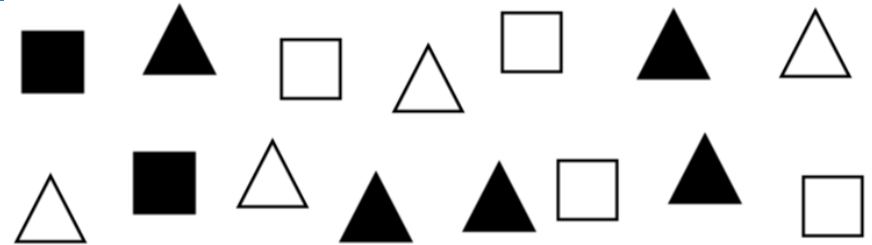
- The probability that they do not wear glasses is  $\frac{3}{5}$
- The probability that they are a female with glasses is 0.2

(a) Complete the two way table.

	Glasses	No Glasses	Total
Male	30	40	70
Female	30	50	80
Total	60	90	150

(b) A male is chosen at random. What is the probability that he wears glasses?  $\frac{30}{70}$

**4** A bag contains these shapes:



A shape is chosen at random. Find the following probabilities.

- (a) P(Black square)  $\frac{2}{15}$
- (b) P(Triangle)  $\frac{9}{15}$
- (c) P(Not white)  $\frac{7}{15}$

Ron says "If I choose a shape 300 times, 25% of them will be black squares"

Do you agree?

Explain your answer.

No, the black squares do not represent 25% of the sample.