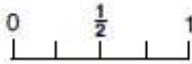# Single Event Probability.

1). There are 8 counters in a box numbered 1, 2, 3, 4, 5, 6, 7 and 8. If one counter is drawn out at random, what is the probability that it is a counter :-
   a). with an odd number,
   b). with an even number,
   c). with a square number,
   d). that is greater than or equal to 6 ?

2). I have a pack of playing cards, containing 52 cards. I pick a card at random. What is the probability that the card I select is :-
   a). a King,
   b). a diamond,
   c). a black card,
   d). the Jack of clubs ?

3). There are four different coloured writing pads. In a pack there are 3 blue, 8 red, 1 white and 4 green. What is the probability when I open a new pack I randomly pick a :-
   a). blue pad,
   b). red pad,
   c). white pad,
   d). green pad,
   e). yellow pad,
   f). red or green pad ?

4).
   0   ½   1

   Draw the number line in your book. The number line represents all possible probabilities. Indicate, by arrows labelled "a" to "f" the probabilities for :-
   a). throwing a TAIL on a coin,
   b). cutting a diamond from a pack of cards,
   c). Saturday following Friday,
   d). the water being cut off today,
   e). scoring a 2 or a 3 on a dice,
   f). your teacher becoming a dinosaur.

5). Arrange these events in order of which is "most likely" down to which is "least likely":-
   a). Throwing a dice and getting a "1".
   b). Being born on a day with "y" in it.
   c). Spinning a coin and it landing "tails".
   d). Somebody having their birthday on New Year's day.

6). Arrange these events in order of which is "most likely" down to which is "least likely":
   a). Picking a red card from a pack of cards.
   b). A fair 4 sided spinner labelled 1, 2, 3 and 4 landing on 4.
   c). Eating a meal some time this month.
   d). Winning the jackpot of the National Lottery.

7). A **biased** coin has a probability of landing on heads of 0.6. What is the probability of landing on tails ?

8). Another **biased** coin has a probability of landing on tails of 0.35. What is the probability of landing on heads ?

9). Year 9 and Year 10 boys play a football match with a penalty shoot-out, so the teams cannot draw. The probability of Year 9 winning is 0.42, what is the probability of Year 10 boys winning ?

10). Year 7 and Year 8 girls play a netball match with a penalty shoot-out, so the teams cannot draw. The probability of Year 8 winning is 0.76, what is the probability of Year 7 winning ?

11). Ben plays a game of chess against a computer, it cannot draw. The computer is set to have a 0.57 chance of winning the game. What is the probability that Ben wins the game ?

12). A second computer is programmed so that the chance it loses is 0.24 and the chance it draws is 0.4. What is the probability that it wins ?

13). In a 50 pence cash bag there are three 1 pence coins, four 2 pence coins, six 5 pence coins and two 10 pence coin. If a coin is drawn at random, what is the probability that the coin :-
   a). is a 1p,
   b). is a copper coin,
   c). is **not** a 5p or 10p,
   d). is a 1p or a 5p,
   e). is **not** a copper coin,
   f). is **not** a 1p, 2p or 5p ?

14). A box contains 2 blue discs, 6 green discs and 10 red discs. If a disc is picked at random what is the probability of getting :-
   a). a blue disc,
   b). a green disc,
   c). a blue or red disc,
   d). a blue or green disc,
   e). **not** a green disc,
   f). a blue, green or red disc ?

15). In an experiment, 65 seeds are sown, but only 37 germinate.
   a). What is the experimental probability of a seed
      i). germinating,   ii). not germinating ?
   b). If 455 seeds are sown, what number might be expected to germinate ?

16). In an experiment, 60 drawing pins were thrown. 42 landed point up, the rest point down.
   a). What is the experimental probability of a drawing pin landing
      i). point up,   ii). point down ?
   b). If 170 drawing pins are thrown, what number might be expected to land **point down**?

17). Here are the results of a survey of cars passing the school.

Colour	Red	Blue	Green	Yellow	Other
Number of cars	23	36	12	16	3

   a). What is the probability of the next car passing the school being
      i). red,   ii). green,   iii). yellow,   iv). **not** blue ?
   b). If 450 cars pass the school, how many do you think would be blue ?
   c). If 720 cars pass the school, how many do you think would be yellow ?
   d). If 45 cars pass the school, how many do you think would be blue ?

18). Andrew and Gordon conduct a survey on pupils favourite pets. Here are the results:-

Pet	Cat	Chimp	Dog	Bird	Other
Frequency	12	4	27	6	1

   a). What is the probability of a pupil's favourite pet being:
      i). a cat,   ii). a chimp,   iii). a bird,   iv). **not** a dog ?
   b). If 225 pupils were asked, how many would say they preferred a cat ?
   c). If 75 pupils were asked, how many would say they preferred a chimp ?
   d). If 675 pupils were asked how many would say they preferred a bird ?

19). 80 buses arrived at Horwich Terminal this morning. 15 arrived early, 10 were late and the rest were on time.
   a). What is the probability that the next bus will be:
      i). late,   ii). early,   iii). on time ?
   b). 48 buses arrive in the afternoon, how many would you expect on time ?
   c). Tomorrow 112 buses are due, how many would you expect to be early ?
   d). This week 776 buses should come through Horwich Terminal, how many would you expect to be late ?