All answers must be given in the form of a fraction, decimal or percent and NOT words such as 'likely' and 'certain'
Write all answers in the gaps on the sheet and show any working on the back with the question number. The OR rule means we add probabilities. As soon as you see the word OR you know that OR means addition in probability. Some of the questions below will require this knowledge

(i)   8 blue balls are in a bag, half as many red as blue and one white. What is the probability of picking a red?-
_____

(ii)   Write examples of events on the probability scale above the arrows (different to those we have discussed previously) (If you are stuck think about coins, cards, spinners etc_____
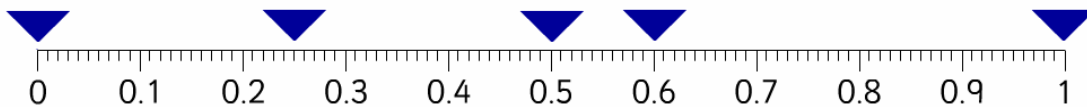
(iii)   What is the probability of a baby not being born in a month starting with the letter J **or** M?
_____

(iv)   Which has the higher probability? (a) Rolling a number 6 on a 6 sided fair die or (b) picking a red counter from a bag which has 7 blue, 8 yellow and 3 red counters? (state why?)_____

(v)   The probability of a football team drawing a match is 0.4. The team are equally likely to win or lose the match. Work out the probability they lose and write your answer as a decimal AND a fraction. _____

(vi)   There are 30 pupils in a class. Half are boys, half are girls. 7 children are left handed and 6 of them are boys. What is the probability that if a girl is selected from the class she is left handed? _____

(vii)   I pick a letter from the alphabet. What is the probability that letter is a (i) a vowel (ii) a consonant and (iii) neither?
_____

(viii)   A spinner has sections with the following numbers; 4,3,1,9,2,4,5,1,3 what is the probability the spinner will land on a (ii) square number (ii) Prime number (iii) a multiple of 2 and (iv) a cube number if spun once?
_____
_____

(ix)   Match these probabilities up with the arrows on the number line
         a.   rolling a number 2 on a six sided fair die
         b.   a football teaming losing a match (given all outcomes are likely)
         c.   looking at the time and seeing its AM rather than PM
         d.   Picking a red counter out a bag of 20 counters when 12 are red.
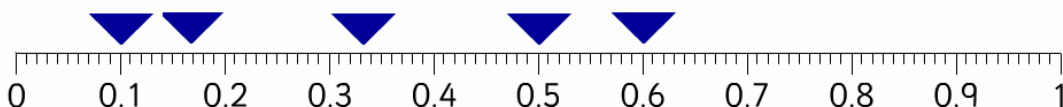
(x)   Sue wants a new hat. The probability she buys hat 1 is 0.35, the probability she buys hat 2 is double that of hat one. What is wrong with the statement? _____

(xi)   John has 5 lessons a day, 5 days a week at school. He has 4 English lessons, 3 Maths and 4 Science. What is the probability that a lessons chosen at random from his timetable is (i) Not Science, Maths or English (ii) PE (iii) Maths
_____
_____

Extension
The 'AND' rule is when you have 'successive' events or 'compounded' events. An example would be flipping a coin and having to get a head followed by a head, followed by another head. This leads to a lower probability as it's harder to keep getting the same result (3 of the same in a row with no chance of error). The AND rule means we multiply the probabilities instead of adding them as before. Using the scenario above, the probability of flipping a head is 1 out of 2 which is equal to ½
Flipping a head **AND** another head **AND** another head (3 in a row) is ½ x ½ x ½ which equals 1/8. This is a 1 in 8 chance which is low.
Try the examples below:
         1.   Flipping 4 heads in a row on a fair two sided coin_____
         2.   Rolling 2 number 5s in a row on a 6 sided fair die_____
         3.   Getting a red card followed by a 2 blacks from a pack of cards (you have replaced the cards after each pick)_____

Teacher Feedback_____
_____
_____

(i)   4/13
(ii)   Realistic events
(iii)   7/12
(iv)   they are equal
(v)   0.3 and 3/10
(vi)   1/15
(vii)   5/26, 21/26, 0
(viii)   5/9, 4/9, 3/9 (or 1/3) 2/9
(ix)   see diagram
(x)   all probabilities have to = 1, this = 1.05
(xi)   14/25, can't tell from information, 3/25

Extension

1. 1/16
2. 1/36
3. 1/8

Teacher Feedback_____

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