



IG-Math  
0580

Probability  
Exercise  
Paper - 2

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Q1 Simon has two boxes of cards. In one box, each card has one shape drawn on it that is either a triangle or a square. In other box, each cards is coloured either red or blue.

Simon picks a card from each box at random.

The probability of picking a triangle card is  $t$ .

The prob. of picking a red card is  $r$ .

Event	Probability
Triangle and red	
Square and red	$(1-t) \cdot r$
Triangle and blue	
Square and blue	

Complete the table for the cards that Simon picks, writing each prob. in terms of  $r$  and  $t$ . S-17/21/Q8 ---[3]

Q2

The diagram shows a fair spinner.

Anna spins it twice and add the scores.

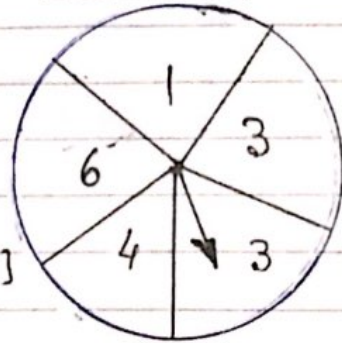
(a) Complete the table for the total scores, --- [1]

(b) Write down the most likely total score, --- [1]

(c) Find the probability that Anna scores,

(i) a total less than 6, --- [2]

(ii) a total of 3, --- [1].



		Score on first spin				
		1	3	3	4	6
Score on second spin	1	2	4	4	5	7
	3	4	6	6	7	9
	3	4	6	6	7	9
	4					
	6					

S-17/21/Q20

Q3

The probability that Stephanie wins her next tennis match is 0.85. Find the prob. that Stephanie does not win her next tennis match.

S-17/23/Q3 ---[1]

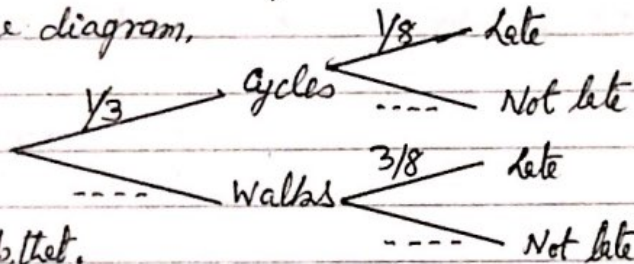
Q4

The Probability that Pedro scores a goal in any match is  $\frac{2}{5}$ . Calculate the prob. that Pedro scores a goal in each of the next two matches.

S-17/23/Q6 ---[2]

Q5 Dan either walks or cycles to school. The probability that he cycles to school is  $\frac{1}{3}$ .

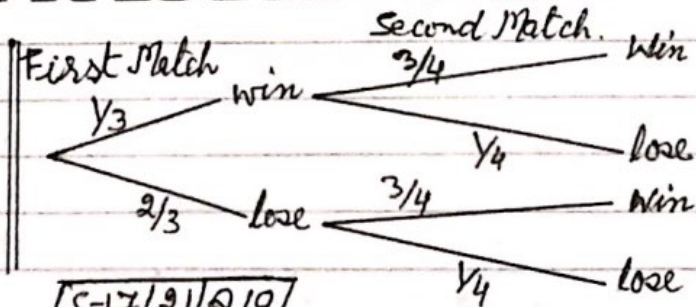
- (a) Write down the prob. that Dan walks to school. ---[1]  
 (b) When Dan cycles to school the prob. that he is late is  $\frac{1}{8}$ .  
 When Dan walks to school the prob. that he is late is  $\frac{3}{8}$ .  
 Complete the tree diagram.



- (c) Complete the prob. that.  
 (i) Dan cycles to school and is late ---[2]  
 (ii) Dan is not late. ---[3]

M-16/22/Q21

Q6 The prob. that a cricket team winning or losing in their first two matches is shown in the tree diagram.



S-17/21/Q19

Find the prob. that the cricket team wins at least one match. ---[3]

Q7 Hattie has a box of coloured pens. She takes a pen at random from the box. The probability that she takes a red pen is 0.4.

- (a) Work out the prob. that she does not take a red pen. ---[1]  
 (b) The box contains only blue, red and green pens. There are 15 blue pens and 15 green pens. Complete the table.

S-16/23/Q11

Colour of pen	Blue	Red	Green
Number of pens	15		15
Probability		0.4	

Q8 Paul and Sammy take part in a race. The probability that Paul wins the race is  $\frac{9}{35}$ . The prob. that Sammy wins the race is 26%. Who is more likely to win the race?

Give a reason for your answer.

S-15/21/Q5

Q9. A biased 4-sided dice is rolled. The possible scores are 1, 2, 3 or 4. The prob. of rolling 1, 3 or 4 is shown in the table.

Complete the table.

S-15/22/Q5

Score	1	2	3	4	.. [2]
Probability	0.15		0.3	0.35	

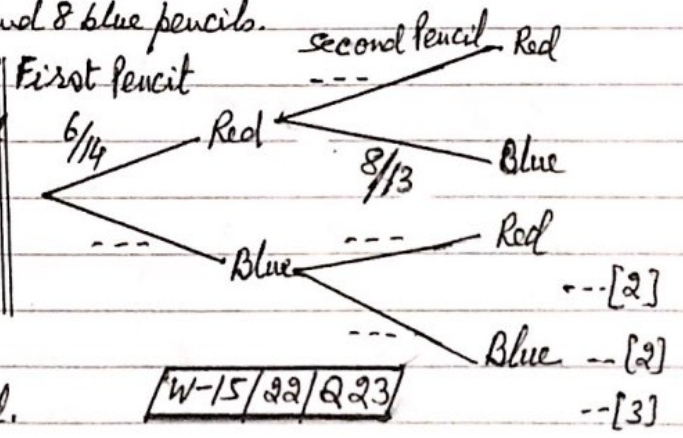
Q10 The table shows the prob. that a person has blue, brown or green eyes. Use the table to work out the prob. that two people, chosen at random,

Eye colour	Blue	Brown	Green
Probability	0.4	0.5	0.1

- (a) have blue eyes. --- [2]
- (b) have different coloured eyes. W-15/21/Q20 --- [4]

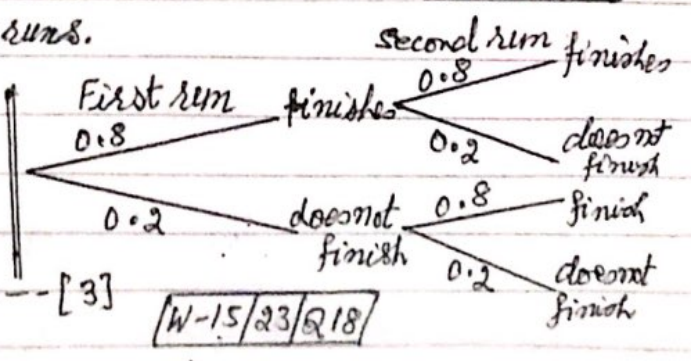
Q11 A box contains 6 red pencils and 8 blue pencils. A pencil is chosen at random and not replaced. A second pencil is then chosen at random.

- (a) Complete the tree diagram.
- (b) Calculate the prob. that
  - (i) both pencils are red.
  - (ii) at least one pencil is red.

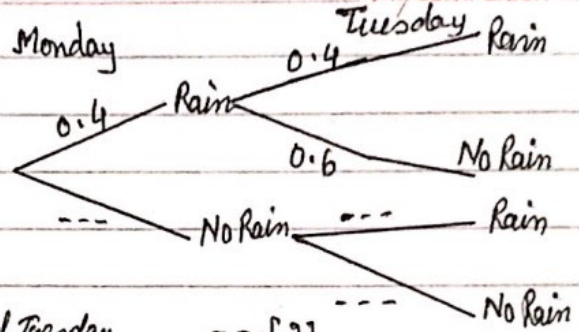


Q12 The prob. that it will rain on any day is  $\frac{1}{5}$ . Calculate an estimate of the number of days it will rain in a month of 30 days. --- [1]

Q13 Samira takes part in two charity runs. The probability that she finishes each run is 0.8. Find the probability that Samira finishes at least one run. --- [3]



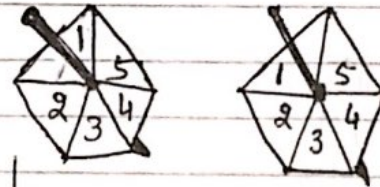
Q14 If it rains today the prob. that it will rain tomorrow is 0.4. If does not rain today the prob. that it will rain tomorrow is 0.2. On Sunday it rained.



- (a) Complete the tree diagram for Monday and Tuesday. --- [2]  
 (b) Find the prob. that it rains on atleast one of the twodays shown in the tree diagram, [W-14/21/Q18] --- [3]

Q15 The Ocean View Hotel has 300 room numbered from 100 to 399. A room is chosen at random. Find the prob. that the room number ends in zero. [S-13/23/Q2] --- [2]

Q16 Two spinners have sections numbered from 1 to 5. Each is spun once and each number is equally likely. The possibility diagram is show below.



- Find the prob. that  
 (a) both spinners show the same number, --- [2]  
 (b) the sum of the numbers shown on the two spinners is 7. --- [2]

Second Spinner	5	x	x	x	x	x	
	4	x	x	x	x	x	--- [2]
	3	x	x	x	x	x	
	2	x	x	x	x	x	--- [2]
	1	x	x	x	x	x	
		1	2	3	4	5	First Spinner

[S-13/23/Q12]

Q17 S P A C E S  
 One of the 6 letters is taken at random.

- (a) Write down the prob. that the letter is S, --- [1]  
 (b) The letter is replaced and again a letter is taken at random. This is repeated 600 times. How many times would you expect the letter to be S. [W-13/21/Q6] --- [1]

Q18 Samira and Sonia each have a bag containing 20 sweets. In each bag, there are 5 red, 6 green and 9 yellow sweets. [M-18/22/Q22]

- (a) Samira chooses one sweet at random from her bag. Write down the prob that she chooses a yellow sweets, --- [1]  
 (b) Sonia chooses two sweets at random, without replacement, from her bag.  
 (i) show that prob. that she chooses two green sweets is  $\frac{3}{38}$  --- [2]  
 (ii) Calculate the prob. that the sweets she chooses are not both the same colour, --- [4]

Answers

Q1  $2t, (1-2)t, (1-2)(1-t)$

Q17. (a)  $\frac{2}{6}$  (b) 200

Q2(a) 5, 7, 7, 8, 10  
7, 9, 9, 10, 12

Q18 (a)  $\frac{9}{20}$

(b) (i)  $\frac{6}{20} \times \frac{5}{19} = \frac{3}{38} \checkmark$

(b) 7

(c) (i) 0.28 (ii) 0

(ii)  $\frac{258}{380}$

Q3 0.15



Q4  $\frac{4}{25}$

Q5 (a)  $\frac{2}{3}$

(b)  $\frac{2}{3}, \frac{7}{8}, \frac{5}{8}$

(c) (i)  $\frac{1}{24}$  (ii)  $\frac{17}{24}$

Q6 5.53

Q7 (a) 0.6 - (b) 20,  
0.3, --, 0.3

Q8 Summary and correct reason  
with 25.7% or shown.

Q9 0.2

Q10 (a) 0.16 (b) 0.58

Q11 (a)  $\frac{8}{15}, \frac{5}{13}, \frac{6}{13}$  and  $\frac{7}{13}$

(b) (i)  $\frac{30}{182}$  (ii)  $\frac{126}{182}$

Q12 6

Q13 0.96

Q14 (a) 0.6, 0.2 and 0.8

(b) 0.52

Q15  $\frac{30}{300}$

Q16 (a)  $\frac{5}{25}$  (b)  $\frac{4}{25}$