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# IG Maths
# 0580

## Probability
## Exercise: Paper_4

SP-20; M-19; M-18; S-19; S-18, W-18.

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1. Sushila, Ravi and Talika each have a bag of balls.
Each of the bags contains 10 red balls and 8 blue balls.

(a) Sushila takes one ball at random from her bag.
Find the prob. that she takes a red ball. ---[1]

(b) Ravi takes two balls at random from his bag, without replacement.
Find the prob. that one ball is red and one ball is blue, ---[3]

(c) Talika takes three balls at random from her bag, without replacement
Find the prob. that the three balls are the same colour. ---[4]

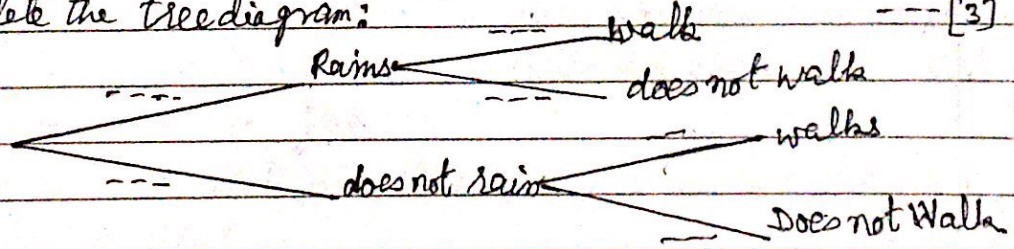
[M-19|42|Q3]

2. Esme has a bag with 5 green counters and 4 red counters.
She takes three counters at random from the bag without replacement.
Workout the prob. that the three counters are all the same colour. ---[4]

[S-19|43|Q8(b)]

3. The prob. that it will rain tomorrow is $\frac{5}{8}$.
If it rains, the prob. that Rafael walks to school is $\frac{1}{6}$.
If it does not rain, the prob. that Rafael walks to school is $\frac{7}{10}$.

(a) Complete the tree diagram: ---[3]




(b) Calculate the prob. that it will rain tomorrow and Rafael walks to school. ---[2]

(c) Calculate the prob. that Rafael does not walk to school, ---[3]

[S-18|41|Q9]

4(a) The diagram shows two sets of cards.

| | | | | | |
|---|---|---|---|---|---|
| Set A | 1 | 1 | 2 | 2 | 2 |
| Set B | 0 | 1 | 1 | 1 | 2 |

(i) Jojo chooses two cards at random from Set A without replacement.
Find the prob. that the two cards have the same number. ---[3]

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4 (a) (ii) Tajo replaces the two cards.
Kylie then chooses one card at random from Set A and one card at random from set B.
Find the prob. that the two cards have the same number. --[3]
(iii) Who is the most likely to choose two cards that have the same number? Show all your working. --[1]

(b)

| Set C | 4 | 4 | 5 | 5 | 5 |
|---|---|---|---|---|---|

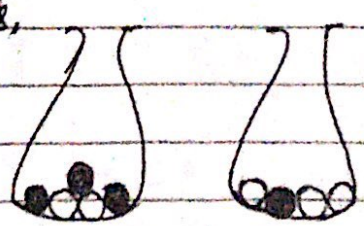
Leena chooses three cards at random from set C without replacement. Find the prob. that the third card chosen is numbered 4. --[3]

S-18/43/Q4

5. A box contains 20 packets of potato chips.
6 packets contain barbecue flavoured chips.
10 packets contain salt flavoured chips.
4 packets contain chicken flavoured chips.
(a) Maria takes two packets at random without replacement.
(i) Show that the prob. that she takes two packets of salt flavoured chips is 9/38 --[2]
(ii) Find the prob. that she takes two packet of different flavoured chips. --[4]
(b) Maria takes three packets at random, without replacement, from the 20 packets.
Find the prob. that she takes at least two packets of chicken flavoured chips. --[3]

W-18/42/Q12

6. Bag A contains 3 black balls and 2 white balls.
Bag B contains 1 black balls and 3 white balls.
(a) A ball is taken at random from each bag.



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6(a) (i) Show that a black ball is more likely to be taken from bag A than from bag B. --- [1]

(ii) Find the prob. that the two balls have different colours. --[3]

(b) The balls are returned to their original bags.
Three balls are taken at random from bag A, without replacement.
Find the prob. that
(i) they are all black. ---[2]
(ii) they are all white. --[1]

(c) The balls are returned to their original bags.
A ball is taken at random from bag A and its colour is recorded.
This ball is then placed in bag B.
A ball is then taken at random from bag B.
Find the prob. that the ball taken from bag B has a different colour to the ball taken from bag A. ---[3]

[W-18|43|Q7]

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# Answers

1.(a) $\frac{5}{9}$ (b) $\frac{80}{153}$ (c) $\frac{11}{57}$

2. $\frac{1}{6}$

3(a) $\frac{5}{8}$ $\frac{3}{8}$

$\frac{1}{6}$ $\frac{5}{6}$

$\frac{7}{10}$ $\frac{3}{10}$

(b) $\frac{5}{48}$ (c) $\frac{304}{480}$

4(a) (i) $\frac{8}{20}$ (ii) $\frac{9}{25}$ (iii) $\frac{40}{100} > \frac{36}{100}$

(b) $\frac{24}{60}$

5(a) (i) $\frac{10}{20} \times \frac{9}{19}$

(ii) $\frac{62}{95}$

(b) $\frac{5}{57}$

6(a) (i) $\frac{3}{5} > \frac{1}{4}$ (ii) $\frac{11}{20}$

(b) (i) $\frac{6}{60}$ (ii) 0

(c) $\frac{11}{25}$

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