Year 9 Class 23 questions

Q1

Musical instruments played.

	guitar (G)	not guitar ($\tilde{G}$)	
saxophone (S)	0.41	0.18	0.59
not saxophone ($\tilde{S}$)	0.15	0.26	0.41
	0.56	0.44	1

What percentage play the saxophone but not the guitar?

[ ] % 18%

What percentage play either the saxophone or guitar?

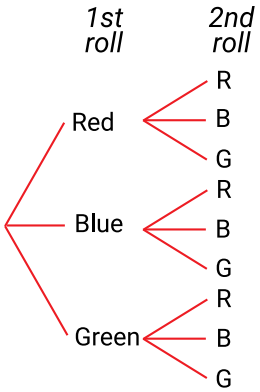
[ ] % 74%

Find the probability a student chosen at random plays both.

[ ] % 41%

Q2

The tree diagram shows the results when spinning a spinner with three equal coloured sectors.



What is the probability of spinning blue on the 1st spin?

[ ]/[ ] $\frac{1}{3}$

What is the probability of spinning red at least once?

[ ]/[ ] $\frac{5}{9}$

What is the probability of spinning green both times?

[ ]/[ ] $\frac{1}{9}$

Q3

A two digit number is formed using the digits 1 to 4. The list shows all the possible results.

11	21	31	41
12	22	32	42
13	23	33	43
14	24	34	44

Find the probability the number is odd.

[ ]/[ ] $\frac{1}{2}$

Find the probability the number contains exactly one 3.

[ ]/[ ] $\frac{3}{8}$

Find the probability the sum of the two digits is greater than 4.

[ ]/[ ] $\frac{5}{8}$

Q4

Favourite sports to watch on television.

	football	cricket	
male	0.56	0.16	0.72
female	[ ] 0.09	0.19	[ ] 0.28
	0.65	[ ] 0.35	1

Complete the table.

What percentage were female?

[ ] % 28%

Find the probability a person chosen at random is a female who watches football.

[ ] % 9%

If 240 people were surveyed, how many liked watching football?

[ ] 156

Q5

Percentage of people exercising at a park.

	jogging (J)	not jogging ($\tilde{J}$)	
walking (W)	0.52	[ ] 0.11	0.63
not walking ($\tilde{W}$)	[ ] 0.07	0.3	[ ] 0.37
	0.59	0.41	1

Complete the table.

What percentage of people are jogging?

[ ] % 59%

Find the probability a person chosen at random walks but does not jog.

[ ] % 11%

If there are 160 people at the park, how many are not exercising?

[ ] 48

Q6

Kirsten is playing a videogame. Each time she finishes a level she is awarded a coin which is either green or red. The colour of the coin is randomly selected. Kirsten has completed two levels.
Draw a tree diagram to help answer the question.

Find the probability that her first coin is green.

$\frac{\square}{\square}$ $\frac{1}{2}$

What is the probability that both her coins are the same colour?

$\frac{\square}{\square}$ $\frac{1}{2}$

What is the probability she is awarded a green coin followed by a red coin?

$\frac{\square}{\square}$ $\frac{1}{4}$

Q7

A box contains one original, one salt and vinegar and one chicken flavoured packet of chips. Jack chooses two packets of chips at random.
Draw a tree diagram to help answer the question.

Find the probability that his first choice is chicken.

$\frac{\square}{\square}$ $\frac{1}{3}$

Find the probability that he chooses original and then chicken.

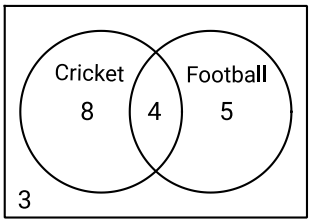
$\frac{\square}{\square}$ $\frac{1}{6}$

Find the probability that salt and vinegar is chosen in either choice.

$\frac{\square}{\square}$ $\frac{2}{3}$

Q8

Students in Mr Hazlewood's class chose their favourite sport.



Find the probability a student chosen at random plays cricket.

$\frac{\square}{\square}$ $\frac{3}{5}$

Find the probability a student chosen at random plays football but not cricket.

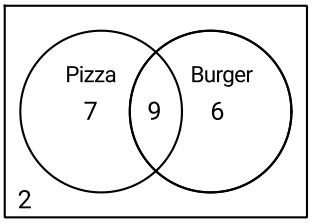
$\frac{\square}{\square}$ $\frac{1}{4}$

Find the probability a student chosen at random plays both football and cricket.

$\frac{\square}{\square}$ $\frac{1}{5}$

Q9

Students in Mr Daniel's class chose their favourite food.



Find the probability a student chosen at random likes pizza.

$\frac{\square}{\square}$ $\frac{2}{3}$

Find the probability a student chosen at random likes both pizza and burgers.

$\frac{\square}{\square}$ $\frac{3}{8}$

Find the probability a student chosen at random likes neither pizza nor burgers.

$\frac{\square}{\square}$ $\frac{1}{12}$

Q10

In a group of 200 students: 18% study art and history, 12% study art but not history and 42% study neither. Draw up a two-way table to represent this information.

What percentage study history but not art?

$\square$ % 28%

What percentage study art?

$\square$ % 30%

How many do not study history?

$\square$ 108

Q11

In a group of 120 students: 25% play cricket but not soccer, 13% play cricket and soccer and 32% play neither. Draw up a two-way table to represent this information.

What percentage play soccer but not cricket?

$\square$ % 30%

What percentage play cricket?

$\square$ % 38%

How many play soccer but not cricket?

$\square$ 36

Q12

On a bus with 60 passengers: 55% of the passengers are male, 35% of passengers have blue eyes and 35% of passengers are not male and do not have blue eyes. Draw up a two-way table to represent this information.

What percentage are male but do not have blue eyes?

[ ] % 30%

Find the probability a person chosen at random is a blue-eyed female.

[ ] % 10%

How many do not have blue eyes?

[ ] 39

Q13

James is playing a videogame. Each time he finishes a level he is awarded a randomly chosen bronze, silver or gold coin. James has completed two levels.

What is the probability he is awarded a bronze or silver coin on the first level?

$\frac{\square}{\square}$ $\frac{2}{3}$

What is the probability he is awarded a gold coin on both levels?

$\frac{\square}{\square}$ $\frac{1}{9}$

What is the probability he is awarded two coins of different colours?

$\frac{\square}{\square}$ $\frac{2}{3}$

Q14

At a wedding reception guests have a choice of a chicken, beef or vegetarian meal. Each comes with a choice of either dessert or a cheese platter.

Find the probability a guest chooses the beef meal with a dessert.

$\frac{\square}{\square}$ $\frac{1}{6}$

Find the probability a guest chooses the cheese platter.

$\frac{\square}{\square}$ $\frac{1}{2}$

Find the probability a guest chooses either chicken or dessert but not both.

$\frac{\square}{\square}$ $\frac{1}{2}$

Q15

A box contains an orange, an apple, a pear and a banana. Sue takes one piece of fruit at random and eats it. Ian then takes a piece of fruit at random from the box.

What is the probability that Sue chooses an apple?

$\frac{\square}{\square}$ $\frac{1}{4}$

What is the probability that Sue chooses an orange and Ian chooses a banana?

$\frac{\square}{\square}$ $\frac{1}{12}$

What is the probability that an apple and a pear are chosen?

$\frac{\square}{\square}$ $\frac{1}{6}$

Q16

Two standard dice are tossed and their product, P, is calculated.

Find the probability that P is 6.

$\frac{\square}{\square}$ $\frac{1}{9}$

Find the probability that P is even.

$\frac{\square}{\square}$ $\frac{3}{4}$

Find the probability that scores of 2 and 2 are recorded in two tosses of the pair of dice.

$\frac{\square}{\square}$ $\frac{1}{324}$

Q17

Two standard dice are tossed and their sum, S, is calculated.

Find the probability that S is 4.

$\frac{\square}{\square}$ $\frac{1}{12}$

Find the probability that S is even.

$\frac{\square}{\square}$ $\frac{1}{2}$

Find the probability that scores of 10 and 10 are recorded in two tosses of the pair of dice.

$\frac{\square}{\square}$ $\frac{1}{144}$

Q18

Two standard dice are tossed and their product, P, is calculated.

Find the probability that P is 8.

$\frac{\square}{\square}$ $\frac{1}{18}$

Find the probability that P is odd.

$\frac{\square}{\square}$ $\frac{1}{4}$

Find the probability that scores of 4 and 4 are recorded in two tosses of the pair of dice.

$\frac{\square}{\square}$ $\frac{1}{144}$

Q19

Of 700 people tested, 20% test positive to virus E, 15% test positive to virus P and 70% test negative to both.

Find the probability that a person chosen at random has E but not P.

$\square$ % 15%

Find the number of people with both.

$\square$ 35

If this is a representative sample, find the number of people in a town of 20,000, who have at least one of the viruses.

$\square$ 6,000

Q20

In a class with 40 students, 55% have a pet dog, 15% have a pet dog and a pet cat and 20% have neither.

Find the probability a student chosen at random has a dog but not a cat.

[ ] % 40%

Find the number of students with a pet cat.

[ ] 16

If this is a representative sample, find the number of students in a school with 600 students, who have at least one of these pets.

[ ] 480

Q21

In a group of 120 people attending a concert: 21% were males with 'floor-standing' tickets, 42% were females with 'seated' tickets and 61% had 'seated' tickets.

Find the probability a person chosen at random has a 'floor - standing' ticket.

[ ] % 39%

Find the number of females in the group.

[ ] 72

If this is a representative sample of the 18,500 people at the concert, find the number of people who are seated.

[ ] 11,285

Q22

Of 500 people tested, 30% test positive to Influenza A, 15% test positive to Influenza B but not to Influenza A and 8% test positive to both.

Find the probability that a person chosen at random has Influenza A but not B.

[ ] % 22%

Find the number of people with neither.

[ ] 275

If this is a representative sample, find the number of people in a town of 15,000, who have at least one of the viruses.

[ ] 6,750

Q23

Three cards labelled 1, 2 and 3 are placed in a hat. Two cards are chosen one at a time and placed next to each other to form a two digit number.

What is the probability that the number is even?

$\frac{\square}{\square}$ $\frac{1}{3}$

What is the probability that the number is prime?

$\frac{\square}{\square}$ $\frac{1}{2}$

If this process is done 150 times, how many odd numbers would you expect to get?

[ ] 100

Q24

A box contains 2 raspberry, 2 lemon and 2 cola ice-blocks. Jeremy takes two ice-blocks at random from the box.

What is the probability that he gets two ice-blocks the same flavour?

$\frac{1}{5}$

What is the probability that he gets two lemon ice-blocks?

$\frac{1}{15}$

If this process was repeated 20 times, how many times would you expect him to get two different flavoured ice-blocks?

16

Q25

Three cards labelled 4, 5 and 6 are placed in a box. Two cards are chosen one at a time and placed next to each other to form a two digit number.

What is the probability that the number is even?

$\frac{2}{3}$

What is the probability that the number is greater than 50?

$\frac{2}{3}$

If this process is done 150 times, how many odd numbers would you expect to get?

50

Q26

A bag contains a red, yellow and white football. A ball is picked out of the bag and then replaced before a second ball is chosen.

What is the probability that the red football is chosen twice?

$\frac{1}{9}$

What is the probability that the yellow ball was chosen?

$\frac{5}{9}$

What is the probability that the white ball is chosen second?

$\frac{1}{3}$

Q27

In a class of 32 students; 18 study History, 24 study Geography and 2 study neither.

What is the probability a student chosen at random studies both History and Geography?

$\frac{3}{8}$

What is the probability a student chosen at random studies Geography but not History?

$\frac{3}{8}$

What is the probability two students chosen at random both study History?

$\frac{153}{496}$

Q28

In a class of 28 students; 15 study Music, 21 study Visual Arts and 3 study neither.

What is the probability a student chosen at random studies both Music and Visual Arts?

$\frac{\square}{\square}$ $\frac{11}{28}$

What is the probability a student chosen at random studies Visual Arts but not Music?

$\frac{\square}{\square}$ $\frac{5}{14}$

What is the probability two students chosen at random both study Music?

$\frac{\square}{\square}$ $\frac{5}{18}$

Q29

In a class of 27 students; 16 study French, 12 study Mandarin and 6 study neither.

What is the probability a student chosen at random studies both French and Mandarin?

$\frac{\square}{\square}$ $\frac{7}{27}$

What is the probability a student chosen at random studies Mandarin but not French?

$\frac{\square}{\square}$ $\frac{5}{27}$

What is the probability two students chosen at random both study French?

$\frac{\square}{\square}$ $\frac{40}{117}$

Q30

In a class of 26 students; 15 study Biology, 14 study Chemistry and 4 study neither.

What is the probability a student chosen at random studies both Biology and Chemistry?

$\frac{\square}{\square}$ $\frac{7}{26}$

What is the probability a student chosen at random studies Chemistry but not Biology?

$\frac{\square}{\square}$ $\frac{7}{26}$

What is the probability two students chosen at random both study Biology?

$\frac{\square}{\square}$ $\frac{21}{65}$