Name:

Exam Style Questions

Listing Outcomes

Corbettmaths

Equipment needed: Calculator, pen

Guidance

1. Read each question carefully before you begin answering it.
2. Check your answers seem right.
3. Always show your workings

Video Tutorial

www.corbettmaths.com/contents

Video 253

Answers and Video Solutions

1. A bag contains a green bead (G), a white bead (W) and a purple bead (P).
A coin can land on tails (T) or heads (H).

A bead is chosen at random from the bag and the coin is flipped.
One of the possible outcomes is a green bead and a tail (GT).

List all the other possible outcomes.

GT, GH WT WH PT PH

(2)

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2. Molly visits a restaurant with her friends.
This is a menu.

Starters	Mains
Soup	Chicken
Prawn Cocktail	Beef
Melon	Pizza

Molly chooses one starter and one main.

List all the possible combinations.

Soup & Chicken, Soup & Beef, soup & pizza
Prawn Cocktail & chicken, Prawn Cocktail & Beef, Prawn Cocktail & Pizza
Melon & chicken, Melon & Beef, Melon & Pizza

or

SC SB SP
PC PB PP
MC MB MP

(2)

3. Micky goes to a coffee shop.
He chooses one drink and one snack.

Drink	Snack
Tea	Muffin
Coffee	Brownie
Juice	Crisps
	Pastry

Write down all the possible combinations.

TM TB TC TP

CM CB CC CP

JM JB JC JP

(2)

4. Orla has four types of vegetable.

Peas
Carrots
Turnip
Spinach

Orla is going to choose 2 different types of vegetable.

Write down all the possible combinations of vegetable she can choose.

PC PT PS

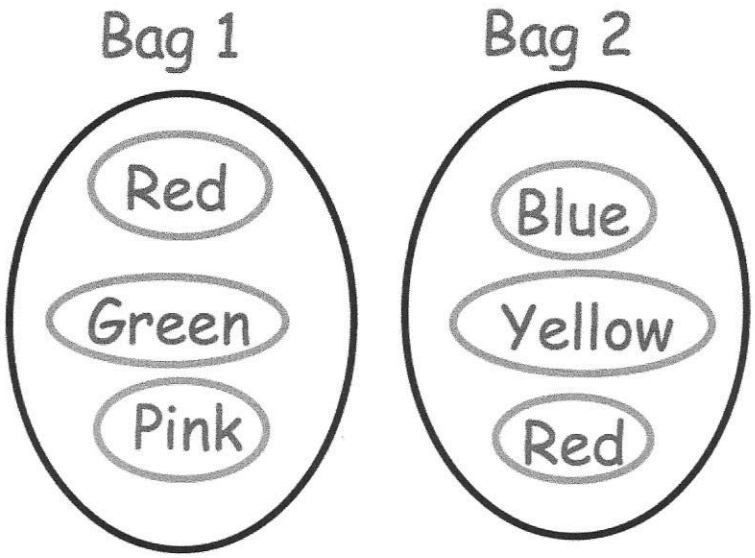
CT CS

TS

(2)

5. There are two bags.
Each bag has three counters inside.

In bag 1, there is one red counter, one green counter and one pink counter.
In bag 2, there is one blue counter, one yellow counter and one red counter.



Rob takes a counter at random from bag 1 and a counter at random from bag 2.

(a) Write a list of all the possible combinations of the two counters that Rob can take.

RB RY RR

GB GY GR

PB PY PR

(2)

(b) Find the probability that Rob takes two counters that are the same colour.

$\frac{1}{9}$

(1)

6. Magnus flips a fair coin once and rolls an ordinary dice once.

(a) Write down all the possible outcomes.

H1 H2 H3 H4 H5 H6

T1 T2 T3 T4 T5 T6

(2)

(b) Find the probability that Magnus gets a head and a 3.

$\frac{1}{12}$

(1)

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7. Two coins are flipped.

List all the possible outcomes.
Use T for tails and H for heads.

TT TH HT HH

(2)

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8. Mohammad flips a fair coin and rolls a fair dice.

List all the possible combinations

H1 H2 H3 H4 H5 H6

T1 T2 T3 T4 T5 T6

(2)

(b) Find the probability that Mohammad gets a tail and a prime number.

$\frac{3}{12}$ $\frac{1}{4}$

(1)

9. William is going to attend a two day summer camp at his local leisure centre. He can take part in one activity on Monday and one activity on Tuesday.

Monday	Tuesday
Golf	Ice-skating
Football	Swimming
Rugby	Dodgeball
Hockey	Basketball

List all the possible combinations of activity he can take part in.

GI GS GD GB

FI FS FD FB

RI RS RD RB

HI HS HD HB

(2)

10. Mark is going to visit three different friends, Adam, Laura and Thomas.

Complete the list of the possible orders he could visit them.

ALT ATL LAT LTA TAL TLA

(2)

11. A rugby team say a code before throwing the ball in a line out.

The code is a positive number below 20 followed by a colour.

The number is a square number.
The colour is either Red (R), Green (G) or Blue (B).

Write down all the possible codes that the rugby team could say.

1R, 4R, 9R, 16R

1G, 4G, 9G, 16G

1B, 4B, 9B, 16B

(2)

12. The Logan family are planning their next two holidays.

The possible destinations are France (F), Spain (S), Portugal (P) and Turkey (T)

The two destinations can be the same or different.

List all the possible options for the two destinations.

FF SS PP TT

FS SF PF TF

FP SP PS TS

FT ST PT TP

(2)

13. There are four rides at a funfair.

They are Bumper Cars (B), Waltzer (W), Roller-coaster (R) and Carousel (C)

Kamel is going to go on each ride once.
He will go on the Roller-coaster last.

List all the possible orders in which he could go on the four rides.

B W C R

B C W R

C W B R

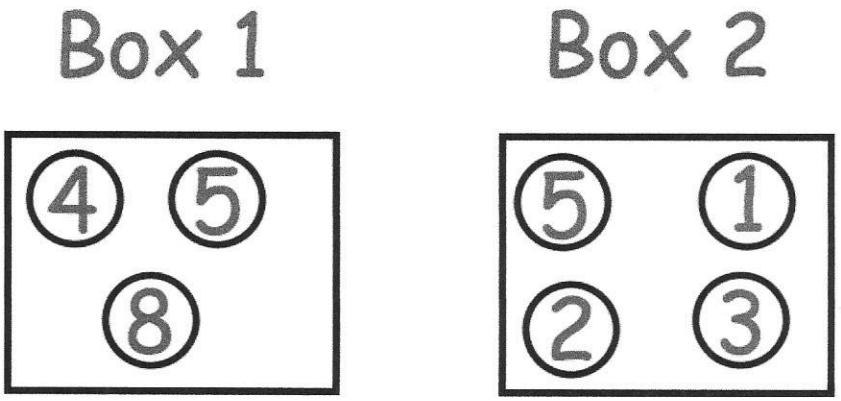
C B W R

W C B R

W B C R

(2)

14. Sarah has made up a game for a school fayre to raise money for charity.
There are two boxes of counters.
Each counter has a number on it.



The person playing the game will select one counter at random from box 1.
Then they will select one counter at random from box 2.

(a) Write down all the possible combinations of counters picked.

4 & 5 | 4 & 2 | 4 & 3 | 4 & 1

5 & 5 | 5 & 2 | 5 & 3 | 5 & 1

8 & 5 | 8 & 2 | 8 & 3 | 8 & 1

(2)

The person playing the game wins when the numbers add up to 10.

During the school fayre, the game is played 240 times.
The game costs £1 to play.
Each prize costs £2.50

(b) Work out how much money Sarah raises for charity.

$P(10) = \frac{2}{12} = \frac{1}{6}$

$\frac{1}{6}$ of 240 = 40 winners

40 × £2.50 = £100

£240 − £100

£ 140

(4)

15. Megan is having a meal with her friends.
She is going to choose one starter, one main and one dessert.
This is the menu.

Starter		Main		Dessert	
Soup	£2.50	Chicken	£6.25	Trifle	£3.50
Prawns	£4.25	Beef	£8.00	Brownie	£4.00
Melon	£3.50	Pork	£7.50	Eton Mess	£4.50

Megan has £15
List all the possible combinations that Megan can afford.

SCT , SCB , SCE

SBT , SBB , SBE

SPT , SPB , SPE

PCT , PCB , PCE

MCT , MCB , MCE

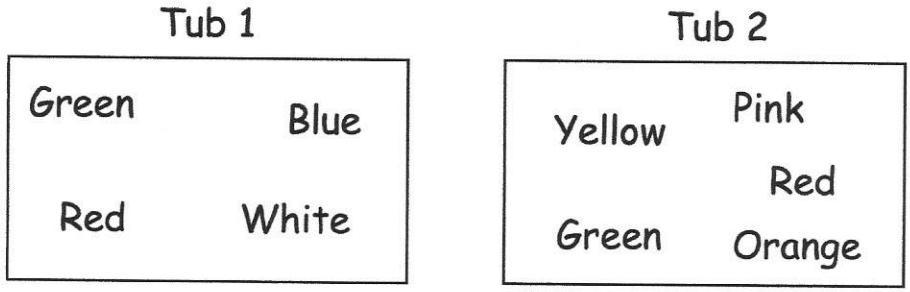
MBT

MPT , MPB

(5)

16. In a game, a player picks a marble at random from two tubs.

There are four marbles in tub 1 and three marbles in tub 2.



If a player picks at least one green marble, they win the game.

Work out the probability that the player wins the game.

GY BY RY WY
GP BP RP WP
GR BR RR WR
GG BG RG WG
GO BO RO WO

$\frac{8}{20} = \frac{4}{10} = \frac{2}{5}$ ..... **(4)**

17. Freya uses a 4-digit code for her debit card.

She only uses digits greater than 3. 4, 5, 6, 7, 8, 9

The first digit is odd. 5, 7, 9
The second and third digits are the same. 44, 55, 66, 77, 88, 99
The fourth digit is a square number. 4, 9

List all the different 4-digit codes that follow these rules.

5444	7444	9444
5449	7449	9449
5554	7554	9554
5559	7559	9559
5664	7664	9664
5669	7669	9669
5774	7774	9774
5779	7779	9779
5884	7884	9884
5889	7889	9889
5994	7994	9994
5999	7999	9999

(3)