

GCSE MATHS • GRADE 2

MATHS



MODEL ANSWERS

SYSTEMATIC LISTING

SCORE

/185

PERCENTAGE

%

STEM UP

- 1 Tia has 3 different tops and 3 different pairs of trousers.
How many different outfits can Tia make using one top and one pair of trousers?

$$3 \times 3 = 9$$

9

1 / 1

- 2 Amelia flips a coin twice.
List all the possible outcomes. Use H for heads and T for tails.

$$2 \times 2 = 4 \text{ outcomes}$$

HH, HT, TH, TT

1 / 1

- 3 Samir is going to have a meal.
Samir can choose one starter and one main from the menu.
Write down all the possible combinations Samir can choose.

Starter	Main
Nachos	Pizza
Garlic Bread	Lasagne

Pair each starter with every main: $2 \times 2 = 4$
combinations

Nachos, Pizza; Nachos, Lasagne;
Garlic Bread, Pizza; Garlic Bread,
Lasagne

1 / 1

- 4 There are 2 roads from Denby to Bexley and 3 roads from Bexley to Carlton.
How many different routes are there from Denby to Carlton through Bexley?

$$2 \times 3 = 6$$

6

1 / 1

- 5 Chloe flips a coin and spins a spinner.
The spinner can land on A, B or C.
List all the possible outcomes. Use H for heads and T for tails.

$$2 \times 3 = 6 \text{ outcomes}$$

HA, HB, HC, TA, TB, TC

1 / 1

- 6 Amelia is choosing a drink and a snack for a picnic.
Amelia can pick one drink and one snack from the list.
List all the possible combinations.

Drink	Snack
Milk	Fruit
Juice	Flapjack

Pair each drink with every snack: $2 \times 2 = 4$
combinations

Milk, Fruit; Milk, Flapjack; Juice,
Fruit; Juice, Flapjack

1 / 1

- 7 There are 2 roads from Bexley to Carlton and 4 roads from Carlton to Denby.
How many different routes are there from Bexley to Denby through Carlton?

$$2 \times 4 = 8$$

8

/ 1

- 8 Priya flips a coin and spins a spinner.
The spinner can land on 1, 2 or 3.
List all the possible outcomes. Use H for heads and T for tails.

$$2 \times 3 = 6 \text{ outcomes}$$

H1, H2, H3, T1, T2, T3

/ 1

- 9 Dev is choosing a drink and a snack for a picnic.
Dev can pick one drink and one snack from the list.
List all the possible combinations.

Drink	Snack
Milk	Muffin
Water	Flapjack

Pair each drink with every snack: $2 \times 2 = 4$
combinations

Milk, Muffin; Milk, Flapjack;
Water, Muffin; Water, Flapjack

/ 1

- 10 There are 2 roads from Denby to Fenton and 2 roads from Fenton to Eaton.
How many different routes are there from Denby to Eaton through Fenton?

$$2 \times 2 = 4$$

4

1 / 1

- 11 Zara is going to flip a coin and roll a 4-sided dice.
The dice can land on 1, 2, 3, 4.
The coin can land on heads (H) or tails (T).
List all the possible outcomes.

*Pair each coin result with each dice number: 2
× 4 = 8 outcomes*

H1, H2, H3, H4, T1, T2, T3, T4

1 / 1

- 12 Samir is choosing a drink and a snack for a picnic.
Samir can pick one drink and one snack from the list.
List all the possible combinations.

Drink	Snack
Juice	Crisps
Milk	Biscuit

*Pair each drink with every snack: 2 × 2 = 4
combinations*

*Juice, Crisps; Juice, Biscuit; Milk,
Crisps; Milk, Biscuit*

1 / 1

- 13 There are 3 roads from Ashford to Fenton and 2 roads from Fenton to Denby.
How many different routes are there from Ashford to Denby through Fenton?

$$3 \times 2 = 6$$

6

1 / 1

- 14 Write down all the different ways of arranging the letters H, F and R.

$$3 \times 2 \times 1 = 6 \text{ arrangements}$$

HFR, HRF, FHR, FRH, RHF, RFH

1 / 1

- 15 Maya has to choose which subjects to study.
Maya can choose one humanity and one language from the options.
Write down all the possible combinations.

Humanity	Language
Religious Studies	German
Geography	French

Pair each humanity with every language: 2×2
= 4 combinations

Religious Studies, German; Religious
Studies, French; Geography, German;
Geography, French

1 / 1

- 16 Priya has 5 tops, 3 pairs of trousers and 4 hats.

How many different outfits can Priya make using one top, one pair of trousers and one hat?

$$5 \times 3 \times 4 = 60$$

60

1 / 1

- 17 Here are 3 digit cards: 2, 4, 5.

All three cards are used to make a 3-digit number.

List all the different 3-digit numbers that can be made.

$$3 \times 2 \times 1 = 6 \text{ numbers}$$

245, 254, 425, 452, 524, 542

1 / 1

- 18 Priya has to choose which subjects to study.

Priya can choose one humanity and one language from the options.

Write down all the possible combinations.

Humanity	Language
Religious Studies	Mandarin
Music	French

Pair each humanity with every language: 2×2
= 4 combinations

Religious Studies, Mandarin;
Religious Studies, French; Music,
Mandarin; Music, French

1 / 1

- 19 Tia has 2 tops, 3 pairs of trousers and 4 hats.

How many different outfits can Tia make using one top, one pair of trousers and one hat?

$$2 \times 3 \times 4 = 24$$

24

1 / 1

- 20 Here are 3 digit cards: 2, 4, 8.

All three cards are used to make a 3-digit number.

List all the different 3-digit numbers that can be made.

$$3 \times 2 \times 1 = 6 \text{ numbers}$$

248, 284, 428, 482, 824, 842

1 / 1

- 21 Dev is choosing a drink and a snack for a picnic.

Dev can pick one drink and one snack from the list.

List all the possible combinations.

Drink	Snack
Juice	Flapjack
Coffee	Fruit

Pair each drink with every snack: $2 \times 2 = 4$ combinations

Juice, Flapjack; Juice, Fruit;
Coffee, Flapjack; Coffee, Fruit

1 / 1

- 22 Ethan has 2 tops, 2 pairs of trousers and 4 hats.

How many different outfits can Ethan make using one top, one pair of trousers and one hat?

$$2 \times 2 \times 4 = 16$$

16

1 / 1

- 23 Here are 3 digit cards: 1, 6, 9.

All three cards are used to make a 3-digit number.

List all the different 3-digit numbers that can be made.

$$3 \times 2 \times 1 = 6 \text{ numbers}$$

169, 196, 619, 691, 916, 961

1 / 1

- 24 Omar is choosing a drink and a snack for a picnic.

Omar can pick one drink and one snack from the list.

List all the possible combinations.

Drink	Snack
Tea	Biscuit
Coffee	Crisps

Pair each drink with every snack: $2 \times 2 = 4$ combinations

Tea, Biscuit; Tea, Crisps; Coffee, Biscuit; Coffee, Crisps

1 / 1

- 25 Oscar has 3 tops, 3 pairs of trousers and 4 hats.

How many different outfits can Oscar make using one top, one pair of trousers and one hat?

$$3 \times 3 \times 4 = 36$$

36

1 / 1

- 26 Here are 3 digit cards: 4, 5, 6.

All three cards are used to make a 3-digit number.

List all the different 3-digit numbers that can be made.

$$3 \times 2 \times 1 = 6 \text{ numbers}$$

456, 465, 546, 564, 645, 654

1 / 1

- 27 Two fair 6-sided dice are rolled.

List all the pairs of scores (first dice, second dice) that have a total of 11.

Start with 1 on the first dice and work through systematically

2 pairs

(5, 6), (6, 5)

1 / 1

- 28 Leo has to choose which subjects to study.
Leo can choose one humanity and one language from the options.
Write down all the possible combinations.

Humanity	Language
Geography	Italian
Art	Latin
Religious Studies	

*Pair each humanity with every language: 3×2
= 6 combinations*

*Geography, Italian; Geography, Latin;
Art, Italian; Art, Latin; Religious
Studies, Italian; Religious Studies, Latin*

1 / 1

- 29 Here are 3 digit cards: 5, 6, 8.
All three cards are used to make a 3-digit number.
List all the different 3-digit numbers that can be made.

$3 \times 2 \times 1 = 6$ numbers

568, 586, 658, 685, 856, 865

1 / 1

- 30 Two fair 4-sided dice are rolled.
List all the pairs of scores (first dice, second dice) that have a total of 3.

*Start with 1 on the first dice and work through
systematically
2 pairs*

(1, 2), (2, 1)

1 / 1

- 31 Sofia is choosing a drink and a snack for a picnic.
Sofia can pick one drink and one snack from the list.
List all the possible combinations.

Drink	Snack
Water	Crisps
Cola	Fruit
Tea	

Pair each drink with every snack: $3 \times 2 = 6$ combinations

Water, Crisps; Water, Fruit; Cola, Crisps; Cola, Fruit; Tea, Crisps; Tea, Fruit

/ 1

- 32 Here are 3 digit cards: 1, 2, 8.
All three cards are used to make a 3-digit number.
List all the different 3-digit numbers that can be made.

$3 \times 2 \times 1 = 6$ numbers

128, 182, 218, 281, 812, 821

/ 1

- 33 Two fair 6-sided dice are rolled.
List all the pairs of scores (first dice, second dice) that have a total of 3.

*Start with 1 on the first dice and work through systematically
2 pairs*

(1, 2), (2, 1)

/ 1

- 34 Jack has to choose which subjects to study.
Jack can choose one humanity and one language from the options.
Write down all the possible combinations.

Humanity	Language
Drama	Latin
Music	French
Geography	

*Pair each humanity with every language: 3×2
= 6 combinations*

*Drama, Latin; Drama, French;
Music, Latin; Music, French;
Geography, Latin; Geography, French*

/ 1

- 35 Here are 3 digit cards: 2, 6, 9.
All three cards are used to make a 3-digit number.
List all the different 3-digit numbers that can be made.

$3 \times 2 \times 1 = 6$ numbers

269, 296, 629, 692, 926, 962

/ 1

- 36 Here are 3 digit cards: 1, 3, 5.
All three cards are used to make a 3-digit number.
List all the different 3-digit numbers that can be made.

$3 \times 2 \times 1 = 6$ numbers

135, 153, 315, 351, 513, 531

/ 1

- 37 Charles is going to have a meal.
Charles can choose one starter and one main from the menu.
Write down all the possible combinations Charles can choose.

Starter	Main
Prawns	Curry
Melon	Lasagne
Pate	

Pair each starter with every main: $3 \times 2 = 6$ combinations

*Prawns, Curry; Prawns, Lasagne;
Melon, Curry; Melon, Lasagne;
Pate, Curry; Pate, Lasagne*

/ 1

- 38 Here are 3 digit cards: 1, 4, 5.
All three cards are used to make a 3-digit number.
List all the different 3-digit numbers that can be made.

$3 \times 2 \times 1 = 6$ numbers

145, 154, 415, 451, 514, 541

/ 1

- 39 Here are 3 digit cards: 3, 8, 9.
All three cards are used to make a 3-digit number.
List all the different 3-digit numbers that can be made.

$3 \times 2 \times 1 = 6$ numbers

389, 398, 839, 893, 938, 983

/ 1

- 40 Noah is choosing a drink and a snack for a picnic.
Noah can pick one drink and one snack from the list.
List all the possible combinations.

Drink	Snack
Milk	Crisps
Cola	Cake
Water	

Pair each drink with every snack: $3 \times 2 = 6$ combinations

Milk, Crisps; Milk, Cake; Cola, Crisps; Cola, Cake; Water, Crisps; Water, Cake

1 / 1

- 41 Priya is going to have a meal.
Priya can choose one starter and one main from the menu.
Write down all the possible combinations Priya can choose.

Starter	Main
Soup	Pizza
Salad	Curry
	Lasagne

Pair each starter with every main: $2 \times 3 = 6$ combinations

Soup, Pizza; Soup, Curry; Soup, Lasagne; Salad, Pizza; Salad, Curry; Salad, Lasagne

2 / 2

- 42 Here are 3 digit cards: 2, 5, 9.
Two of the cards are used to make a 2-digit number.
List all the different 2-digit numbers that can be made.

3 choices for the tens digit and 2 for the units: 6 numbers

25, 29, 52, 59, 92, 95

2 / 2

- 43 Two fair 4-sided dice are rolled.

List all the pairs of scores (first dice, second dice) that have a total of 6.

Start with 1 on the first dice and work through systematically
3 pairs

(2, 4), (3, 3), (4, 2)

2 / 2

- 44 Jack is choosing a drink and a snack for a picnic.

Jack can pick one drink and one snack from the list.

List all the possible combinations.

Drink	Snack
Cola	Muffin
Milk	Fruit
	Flapjack

Pair each drink with every snack: $2 \times 3 = 6$ combinations

Cola, Muffin; Cola, Fruit; Cola, Flapjack; Milk, Muffin; Milk, Fruit; Milk, Flapjack

2 / 2

- 45 Here are 3 digit cards: 3, 4, 9.

Two of the cards are used to make a 2-digit number.

List all the different 2-digit numbers that can be made.

3 choices for the tens digit and 2 for the units: 6 numbers

34, 39, 43, 49, 93, 94

2 / 2

- 46 Two fair 6-sided dice are rolled.

List all the pairs of scores (first dice, second dice) that have a total of 4.

Start with 1 on the first dice and work through systematically
3 pairs

(1, 3), (2, 2), (3, 1)

2 / 2

- 47 Rosalind is choosing a drink and a snack for a picnic.
 Rosalind can pick one drink and one snack from the list.
 List all the possible combinations.

Drink	Snack
Coffee	Crisps
Cola	Fruit
	Biscuit

Pair each drink with every snack: $2 \times 3 = 6$ combinations

*Coffee, Crisps; Coffee, Fruit;
 Coffee, Biscuit; Cola, Crisps;
 Cola, Fruit; Cola, Biscuit*

2 / 2

- 48 A lock code uses 2 digits.
 Each digit is chosen from 1 to 6, and a digit can be used more than once.
 How many different codes are possible?

$6 \times 6 = 36$

36

2 / 2

- 49 Here are 3 digit cards: 2, 6, 7.
All three cards are used to make a 3-digit number.
List all the even numbers that can be made.

An even number must end in an even digit

All numbers: 267, 276, 627, 672, 726, 762

276, 672, 726, 762

2 / 2

- 50 Zara is choosing a drink and a snack for a picnic.
Zara can pick one drink and one snack from the list.
List all the possible combinations.

Drink	Snack
Milk	Biscuit
Cola	Fruit
Water	

Pair each drink with every snack: $3 \times 2 = 6$ combinations

Milk, Biscuit; Milk, Fruit; Cola, Biscuit; Cola, Fruit; Water, Biscuit; Water, Fruit

2 / 2

- 51 A lock code uses 2 digits.
Each digit is chosen from 1 to 3, and a digit can be used more than once.
How many different codes are possible?

$$3 \times 3 = 9$$

9

2 / 2

- 52 Omar spins two spinners, one red and one blue, each numbered 1 to 3.
List all the possible outcomes as (red, blue).

$3 \times 3 = 9$ outcomes

(1, 1), (1, 2), (1, 3), (2, 1), (2, 2), (2, 3), (3, 1), (3, 2), (3, 3)

2 / 2

- 53 Ethan is going to have a meal.
Ethan can choose one starter and one main from the menu.
Write down all the possible combinations Ethan can choose.

Starter	Main
Salad	Lasagne
Garlic Bread	Fish
Nachos	

Pair each starter with every main: $3 \times 2 = 6$ combinations

Salad, Lasagne; Salad, Fish; Garlic Bread, Lasagne; Garlic Bread, Fish; Nachos, Lasagne; Nachos, Fish

2 / 2

- 54 Here are 3 digit cards: 1, 2, 6.
All three cards are used to make a 3-digit number.
List all the even numbers that can be made.

An even number must end in an even digit
All numbers: 126, 162, 216, 261, 612, 621

126, 162, 216, 612

2 / 2

55 A lock code uses 2 digits.

Each digit is chosen from 1 to 4, and a digit can be used more than once.

How many different codes are possible?

$$4 \times 4 = 16$$

16

2 / 2

56 Mason is choosing a drink and a snack for a picnic.

Mason can pick one drink and one snack from the list.

List all the possible combinations.

Drink	Snack
Coffee	Crisps
Juice	Flapjack
	Cake

Pair each drink with every snack: $2 \times 3 = 6$ combinations

Coffee, Crisps; Coffee, Flapjack;
Coffee, Cake; Juice, Crisps; Juice,
Flapjack; Juice, Cake

2 / 2

57 Here are 3 digit cards: 4, 7, 8.

All three cards are used to make a 3-digit number.

List all the even numbers that can be made.

An even number must end in an even digit

All numbers: 478, 487, 748, 784, 847, 874

478, 748, 784, 874

2 / 2

- 58 3 runners are in a race. There are no ties.
How many different orders can they finish in?

$$3 \times 2 \times 1 = 6$$

6

2 / 2

- 59 Zara is choosing a drink and a snack for a picnic.
Zara can pick one drink and one snack from the list.
List all the possible combinations.

Drink	Snack
Coffee	Crisps
Juice	Cake
Cola	

Pair each drink with every snack: $3 \times 2 = 6$
combinations

Coffee, Crisps; Coffee, Cake;
Juice, Crisps; Juice, Cake; Cola,
Crisps; Cola, Cake

2 / 2

- 60 Two fair 6-sided dice are rolled.
List all the pairs of scores (first dice, second dice) that have a total of 9.

Start with 1 on the first dice and work through
systematically
4 pairs

(3, 6), (4, 5), (5, 4), (6, 3)

2 / 2

- 61 Here are 4 digit cards: 4, 7, 8, 9.
Two of the cards are used to make a 2-digit number.
List all the different 2-digit numbers that can be made.

*4 choices for the tens digit and 3 for the units:
12 numbers*

47, 48, 49, 74, 78, 79, 84, 87,
89, 94, 97, 98

2 / 2

- 62 Samir has to choose which subjects to study.
Samir can choose one humanity and one language from the options.
Write down all the possible combinations.

Humanity	Language
History	French
Music	German
	Latin

*Pair each humanity with every language: 2×3
= 6 combinations*

History, French; History, German;
History, Latin; Music, French;
Music, German; Music, Latin

2 / 2

- 63 Two fair 4-sided dice are rolled.
List all the pairs of scores (first dice, second dice) that have a total of 5.

*Start with 1 on the first dice and work through
systematically
4 pairs*

(1, 4), (2, 3), (3, 2), (4, 1)

2 / 2

- 64 Here are 4 digit cards: 1, 5, 7, 9.
Two of the cards are used to make a 2-digit number.
List all the different 2-digit numbers that can be made.

*4 choices for the tens digit and 3 for the units:
12 numbers*

*15, 17, 19, 51, 57, 59, 71, 75, 79,
91, 95, 97*

2 / 2

- 65 Isla is choosing a drink and a snack for a picnic.
Isla can pick one drink and one snack from the list.
List all the possible combinations.

Drink	Snack
Juice	Fruit
Coffee	Flapjack
Milk	

*Pair each drink with every snack: $3 \times 2 = 6$
combinations*

*Juice, Fruit; Juice, Flapjack;
Coffee, Fruit; Coffee, Flapjack;
Milk, Fruit; Milk, Flapjack*

2 / 2

- 66 Two fair 6-sided dice are rolled.
List all the pairs of scores (first dice, second dice) that have a total of 6.

*Start with 1 on the first dice and work through
systematically
5 pairs*

*(1, 5), (2, 4), (3, 3), (4, 2),
(5, 1)*

2 / 2

- 67 Here are 3 digit cards: 1, 2, 5.
All three cards are used to make a 3-digit number.
How many of the possible numbers are odd?

Odd numbers: 125, 215, 251, 521

4

2 / 2

- 68 Jack has to choose which subjects to study.
Jack can choose one humanity and one language from the options.
Write down all the possible combinations.

Humanity	Language
Drama	Spanish
Music	Italian
Religious Studies	

*Pair each humanity with every language: 3×2
= 6 combinations*

*Drama, Spanish; Drama, Italian; Music,
Spanish; Music, Italian; Religious Studies,
Spanish; Religious Studies, Italian*

2 / 2

- 69 Four friends stand in a line for a photograph.
How many different orders can they stand in?

$4 \times 3 \times 2 \times 1 = 24$

24

2 / 2

- 70 Here are 3 digit cards: 2, 4, 9.
All three cards are used to make a 3-digit number.
How many of the possible numbers are odd?

Odd numbers: 249, 429

2

2 / 2

- 71 Samir has to choose which subjects to study.
Samir can choose one humanity and one language from the options.
Write down all the possible combinations.

Humanity	Language
Religious Studies	Mandarin
Music	Italian
Art	

*Pair each humanity with every language: 3×2
= 6 combinations*

*Religious Studies, Mandarin; Religious
Studies, Italian; Music, Mandarin; Music,
Italian; Art, Mandarin; Art, Italian*

2 / 2

- 72 A lock code uses 3 digits.
Each digit is chosen from 1 to 6, and a digit can be used more than once.
How many different codes are possible?

$6 \times 6 \times 6 = 216$

216

2 / 2

- 73 Here are 3 digit cards: 6, 8, 9.
All three cards are used to make a 3-digit number.
How many of the possible numbers are odd?

Odd numbers: 689, 869

2

2 / 2

- 74 A club has 5 members. One is chosen as chair and a different one as secretary.
How many different ways can the two jobs be given out?

*5 choices for chair, then 4 for secretary: 5×4
= 20*

20

2 / 2

- 75 A lock code uses 3 digits.
Each digit is chosen from 1 to 4, and a digit can be used more than once.
How many different codes are possible?

$4 \times 4 \times 4 = 64$

64

2 / 2

- 76 Here are 3 digit cards: 1, 8, 9.
All three cards are used to make a 3-digit number.
How many of the possible numbers are odd?

Odd numbers: 189, 819, 891, 981

4

3 / 3

- 77 Dev rolls two 4-sided dice, one red and one blue.
List all the possible outcomes as (red, blue).

$4 \times 4 = 16$ outcomes

(1, 1), (1, 2), (1, 3), (1, 4), (2, 1), (2, 2),
(2, 3), (2, 4), (3, 1), (3, 2), (3, 3), (3,
4), (4, 1), (4, 2), (4, 3), (4, 4)

3 / 3

- 78 A lock code uses 3 digits.
Each digit is chosen from 1 to 3, and a digit can be used more than once.
How many different codes are possible?

$3 \times 3 \times 3 = 27$

27

3 / 3

- 79 4 runners are in a race. There are no ties.
How many different orders can they finish in?

$$4 \times 3 \times 2 \times 1 = 24$$

24

3 / 3

- 80 Here are 3 digit cards: 1, 3, 5.
All three cards are used to make a 3-digit number.
List all the numbers that are greater than 351.

All numbers: 135, 153, 315, 351, 513, 531

513, 531

3 / 3

- 81 Two fair 6-sided dice are rolled.
List all the pairs of scores (first dice, second dice) that have a total of 7.

*Start with 1 on the first dice and work through
systematically
6 pairs*

(1, 6), (2, 5), (3, 4), (4, 3),
(5, 2), (6, 1)

3 / 3

- 82 Maya has to choose which subjects to study.
Maya can choose one humanity and one language from the options.
Write down all the possible combinations.

Humanity	Language
Religious Studies	German
Music	Italian
Geography	Spanish

*Pair each humanity with every language: 3×3
= 9 combinations*

*Religious Studies, German; Religious Studies, Italian;
Religious Studies, Spanish; Music, German; Music,
Italian; Music, Spanish; Geography, German; Geography,
Italian; Geography, Spanish*

3 / 3

- 83 Here are 3 digit cards: 4, 6, 9.
All three cards are used to make a 3-digit number.
List all the numbers that are greater than 694.

All numbers: 469, 496, 649, 694, 946, 964

946, 964

3 / 3

- 84 Ravi has plenty of 10p, 20p and 50p coins.
List all the different ways he can make exactly 30p using these coins.
(Each way is a list of coins; the order of the coins does not matter.)

*Start with the largest coin and work down
systematically: 2 ways*

20 + 10; 10 + 10 + 10

3 / 3

- 85 Tia is choosing a drink and a snack for a picnic.
Tia can pick one drink and one snack from the list.
List all the possible combinations.

Drink	Snack
Cola	Fruit
Juice	Biscuit
Milk	Crisps

Pair each drink with every snack: $3 \times 3 = 9$ combinations

*Cola, Fruit; Cola, Biscuit; Cola, Crisps;
Juice, Fruit; Juice, Biscuit; Juice, Crisps;
Milk, Fruit; Milk, Biscuit; Milk, Crisps*

3 / 3

- 86 Here are 3 digit cards: 1, 5, 7.
All three cards are used to make a 3-digit number.
List all the numbers that are greater than 571.

All numbers: 157, 175, 517, 571, 715, 751

715, 751

3 / 3

- 87 Ravi has plenty of 20p and 50p coins.
List all the different ways he can make exactly 100p using these coins.
(Each way is a list of coins; the order of the coins does not matter.)

Start with the largest coin and work down systematically: 2 ways

50 + 50; 20 + 20 + 20 + 20 + 20

3 / 3

- 88** Tia, Ruby, Alex and Finn are in a group. Two of them are chosen to carry a banner.
List all the different pairs that can be chosen.
(Choosing Tia and Ruby is the same as choosing Ruby and Tia.)

*6 pairs: each person is paired with everyone
after them in the list*

*Tia and Ruby; Tia and Alex; Tia
and Finn; Ruby and Alex; Ruby
and Finn; Alex and Finn*

3 / 3

- 89** Here are 3 digit cards: 2, 7, 9.
All three cards are used to make a 3-digit number.
List all the numbers that are greater than 792.

All numbers: 279, 297, 729, 792, 927, 972

927, 972

3 / 3

- 90** Ravi has plenty of 10p and 20p coins.
List all the different ways he can make exactly 30p using these coins.
(Each way is a list of coins; the order of the coins does not matter.)

*Start with the largest coin and work down
systematically: 2 ways*

20 + 10; 10 + 10 + 10

3 / 3

- 91 Rosalind, Isla, Ethan, Chloe and Hannah are in a group. Two of them are chosen to carry a banner.

List all the different pairs that can be chosen.

(Choosing Rosalind and Isla is the same as choosing Isla and Rosalind.)

10 pairs: each person is paired with everyone after them in the list

Rosalind and Isla; Rosalind and Ethan; Rosalind and Chloe; Rosalind and Hannah; Isla and Ethan; Isla and Chloe; Isla and Hannah; Ethan and Chloe; Ethan and Hannah; Chloe and Hannah

3 / 3

- 92 Here are 3 digit cards: 5, 6, 7.

All three cards are used to make a 3-digit number.

List all the numbers that are greater than 675.

All numbers: 567, 576, 657, 675, 756, 765

756, 765

3 / 3

- 93 Ravi has plenty of 5p, 20p and 50p coins.

List all the different ways he can make exactly 40p using these coins.

(Each way is a list of coins; the order of the coins does not matter.)

Start with the largest coin and work down systematically: 3 ways

*20 + 20; 20 + 5 + 5 + 5 + 5;
5 + 5 + 5 + 5 + 5 + 5 + 5 + 5*

3 / 3

- 94 Here are 3 digit cards: 3, 4, 6.
All three cards are used to make a 3-digit number.
List all the numbers that are greater than 463.

All numbers: 346, 364, 436, 463, 634, 643

634, 643

3 / 3

- 95 Ravi has plenty of 5p, 20p and 50p coins.
List all the different ways he can make exactly 50p using these coins.
(Each way is a list of coins; the order of the coins does not matter.)

*Start with the largest coin and work down
systematically: 4 ways*

*50; 20 + 20 + 5 + 5; 20 + 5 +
5 + 5 + 5 + 5 + 5; 5 + 5 + 5
+ 5 + 5 + 5 + 5 + 5 + 5 + 5*

3 / 3

- 96 Ravi has plenty of 5p and 20p coins.
List all the different ways he can make exactly 70p using these coins.
(Each way is a list of coins; the order of the coins does not matter.)

*Start with the largest coin and work down
systematically: 4 ways*

*20 + 20 + 20 + 5 + 5; 20 + 20 + 5 + 5 + 5 + 5 + 5
+ 5; 20 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5; 5
+ 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5*

3 / 3

97 Ravi has plenty of 10p and 20p coins.

List all the different ways he can make exactly 100p using these coins.

(Each way is a list of coins; the order of the coins does not matter.)

Start with the largest coin and work down systematically: 6 ways

$$20 + 20 + 20 + 20 + 20; 20 + 20 + 20 + 20 + 10 + 10; 20 + 20 + 20 + 10 + 10 + 10 + 10; 20 + 20 + 10 + 10 + 10 + 10 + 10; 20 + 10 + 10 + 10 + 10 + 10 + 10 + 10 + 10; 10 + 10 + 10 + 10 + 10 + 10 + 10 + 10 + 10 + 10 + 10$$

3 / 3

98 Ravi has plenty of 5p, 20p and 50p coins.

List all the different ways he can make exactly 80p using these coins.

(Each way is a list of coins; the order of the coins does not matter.)

Start with the largest coin and work down systematically: 7 ways

$50 + 20 + 5 + 5$; $50 + 5 + 5 + 5 + 5 + 5 + 5$; $20 + 20 + 20 + 20$; $20 + 20 + 20 + 5 + 5 + 5 + 5$; $20 + 20 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5$; $20 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5$; $5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5$; $5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5$

3 / 3

99 Ravi has plenty of 5p and 10p coins.

List all the different ways he can make exactly 60p using these coins.

(Each way is a list of coins; the order of the coins does not matter.)

Start with the largest coin and work down systematically: 7 ways

$10 + 10 + 10 + 10 + 10 + 10; 10 + 10 + 10 + 10 + 10 + 5 + 5; 10 + 10 + 10 + 10 + 5 + 5 + 5 + 5; 10 + 10 + 10 + 5 + 5 + 5 + 5 + 5 + 5; 10 + 10 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5; 10 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5; 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5$

3 / 3

100 Ravi has plenty of 5p, 10p and 20p coins.

List all the different ways he can make exactly 40p using these coins.

(Each way is a list of coins; the order of the coins does not matter.)

Start with the largest coin and work down systematically: 9 ways

20 + 20; 20 + 10 + 10; 20 + 10 + 5 + 5; 20 + 5 + 5 + 5 + 5; 10 + 10 + 10 + 10; 10 + 10 + 10 + 5 + 5; 10 + 10 + 5 + 5 + 5 + 5; 10 + 5 + 5 + 5 + 5 + 5; 10 + 5 + 5 + 5 + 5 + 5 + 5; 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5

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