Chapter 4: Thousands Around Us

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Exercise 4.1 — Donations — Write the Number

Q1 Write the number: 4 Ones + 7 Tens

SOLUTION

4 Ones = 4

7 Tens = 70

4 + 70 = 74

Q2 Write the number: 100 – 7

SOLUTION

100 – 7 = 93

Q3 Write the number: Twelve

SOLUTION

Twelve in digits = 12

Q4 Write the number: 10 + 10 + 10 + 10 + 10

SOLUTION

10 + 10 + 10 + 10 + 10 = 5 tens = 50

Q5 The number 60 is shown. What quantity equals 60?

SOLUTION

60 = 6 Tens + 0 Ones

Number shown is 60

Q6 Write the number: Ten more than three hundred twelve

SOLUTION

Three hundred twelve = 312

Ten more than 312 = 312 + 10 = 322

Exercise 4.2 — Let Us Do — Make 3-Digit Numbers

Q1 (a) Make 3-digit numbers using only the digits 3 and 7. Write them in the boxes. Circle the smallest and cross out the largest.

SOLUTION

The digits are 3 and 7. For each of the three positions (H, T, O) we choose either 3 or 7.
All 3-digit numbers: 333, 337, 373, 377, 733, 737, 773, 777
Smallest: 333 (circle it)
Largest: 777 (cross it out)

Q2 (b) Make six 3-digit numbers using the digits 3, 5, 0, 8 such that all numbers are less than 550. You can repeat the digits.

SOLUTION

Hundreds digit cannot be 0 (then it would not be a 3-digit number).
Hundreds digit can be 3 or 5. If 5, the number must still be < 550.
Sample six valid numbers: 300, 308, 333, 350, 500, 503
All satisfy: 3-digit and < 550

Q3 (c) Mark the numbers you made in 1(b) on the number line (from 200 to 600).

SOLUTION

Mark each chosen number at its correct position on the number line between 200 and 600.
Example: 300 is at the 300 tick, 308 is just after 300, 333 is between 300 and 350, 350 is at the 350 tick, 500 is at the 500 tick, 503 is just after 500.

Exercise 4.3 — Let Us Do — Fill in the Blanks (Number Sequences)

Q1 (a) Fill in the blanks: ___, 788, ___, 787, ___

SOLUTION

The numbers are decreasing by 1 each step.
Sequence: 789, 788, 787 (counting down by 1)
Missing value between 788 and 787: there is no gap — they are consecutive.
If a blank appears before 788: 789; after 787: 786

Q2 (b) Fill in the blanks: ___, 933, ___

SOLUTION

Counting up by 1: 932, 933, 934
Blank before 933 = 932; blank after 933 = 934

Q3 (c) Fill in the blanks: 679, ___, 689

SOLUTION

From 679 to 689 is a jump of 10.
Counting by 5: 679, 684, 689
Blank = 684

Q4 (d) Fill in the blanks: 338, ___, 348

SOLUTION

From 338 to 348 is a jump of 10.
Counting by 5: 338, 343, 348
Blank = 343

Q5 (e) Fill in the blanks: 567, ___, 367

SOLUTION

From 567 to 367 the hundreds digit decreases by 2, so counting down by 100.
567, 467, 367
Blank = 467

Exercise 4.4 — Let Us Do — Estimate Numbers Around You

Q1 Identify the range of numbers most suitable for the situations. Match each situation to the correct range: Only 1 / 2 to 5 / 10 to 50 / 50 to 100 / 100 to 200 / 200 to 500 / 500 to 1000 / More than 1000.

SOLUTION

Number of tables in your classroom → 10 to 50 (typical classrooms have 20–40 tables)
Number of books in your classroom → 50 to 100
Number of fingers in your classroom → 100 to 200 (25 students × 10 fingers = 250, reasonable for 200–500 range but 100–200 fits a small class)
Number of leaves in a plant → 50 to 100 (a potted plant)
Number of pages in your maths textbook → 100 to 200
Number of books in your library → 500 to 1000
Number of letters on this page → 200 to 500
Number of children in your school → More than 1000
Number of girls in your school → 500 to 1000
Number of children in your village → More than 1000
Number of teachers in your school → 10 to 50
Number of steps to reach school → 200 to 500
Number of leaves in a tree → More than 1000
Number of ants in an anthill → More than 1000
Note: Answers may vary — discuss your reasoning with the class.

Q2 Identify things around you that are more than 1000 in number.

SOLUTION

Examples: grains of rice in a bag, blades of grass in a lawn, leaves on a tree, pages in a large dictionary, people in a town market.
Look around your home, school, or neighbourhood and share your examples.

Exercise 4.5 — Let Us Break Up One-Thousand

Q1 (a) We are at 900. How much more to make 1000?

SOLUTION

1000 – 900 = 100
900 + 100 = 1000

Q2 (b) Mark 800. How much more to make 1000?

SOLUTION

1000 – 800 = 200
800 + 200 = 1000

Q3 (c) Mark 850. How much more to 1000?

SOLUTION

1000 – 850 = 150
850 + 150 = 1000

Q4 (d) Mark 760. How much more to 1000?

SOLUTION

1000 – 760 = 240
760 + 240 = 1000

Q5 (e) Mark 400. How much less is 400 than 1000? 1000 – ___ = 400

SOLUTION

1000 – 400 = 600
So 400 is 600 less than 1000.
1000 – 600 = 400

Q6 (f) Complete the addition facts leading to 1000: 670 + ___ = 1000; 895 + ___ = 1000; ___ + ___ = 1000 (using 770 and 830 and 980)

SOLUTION

670 + 330 = 1000 (1000 – 670 = 330)
895 + 105 = 1000 (1000 – 895 = 105)
770 + 230 = 1000 (1000 – 770 = 230)
830 + 170 = 1000 (1000 – 830 = 170)
980 + 20 = 1000 (1000 – 980 = 20)

Exercise 4.6 — Grouping and Regrouping

Q1 Look at the pictures. Circle as many groups of 10 Ones or 10 Tens as possible. Write the final number. (a) Picture showing loose ones and tens. (b) Picture showing hundreds, tens and ones.

SOLUTION

Figure (a) — loose ones: count the individual squares → approximately 14 ones in total. Circle a group of 10 ones → 1 group of ten left over with 4 loose ones. 10 + 4 = 14; 1 Ten + 4 Ones = 14. Figure (b) — tens bars: the large block shows 2 groups of 10 tens each (2 hundreds) plus 3 additional tens bars. Circle each group of 10 tens to make a hundred. 200 + 30 = 230; 2 Hundreds + 3 Tens + 0 Ones = 230.

Q2 Circle groups of ten 1s, 10s, and 100s in each picture. Fill in the empty boxes. (a) 14 Ones → (b) 23 Ones → (c) 1 Ten and 27 Ones → (d) 10 Tens and 6 Ones (given as 106) → (e) 11 Tens and 14 Ones → (f) 1 Hundred, 12 Tens and 14 Ones →

SOLUTION

(a) 14 Ones: group 10 into 1 Ten → 1 Ten + 4 Ones = 14

(b) 23 Ones: group 20 into 2 Tens → 2 Tens + 3 Ones = 23

(c) 1 Ten and 27 Ones: regroup 27 Ones → 2 Tens 7 Ones; total = (1+2) Tens + 7 Ones = 3 Tens + 7 Ones = 37

(d) 10 Tens and 6 Ones: 10 Tens = 1 Hundred → 1 Hundred + 0 Tens + 6 Ones = 106 (given)

(e) 11 Tens and 14 Ones: 14 Ones = 1 Ten + 4 Ones; total tens = 11 + 1 = 12 Tens; 12 Tens = 1 Hundred + 2 Tens; so 1 Hundred + 2 Tens + 4 Ones = 124

(f) 1 Hundred + 12 Tens + 14 Ones: 14 Ones = 1 Ten + 4 Ones; total tens = 12+1 = 13 Tens = 1 Hundred + 3 Tens; total hundreds = 1+1 = 2; so 2 Hundreds + 3 Tens + 4 Ones = 234

Exercise 4.7 — Let Us Solve — Ones and Tens

Q1 Identify and write the numbers. (a) 45 Ones

SOLUTION

45 Ones = 4 Tens + 5 Ones = 45

Q2 (b) 39 Ones

SOLUTION

39 Ones = 3 Tens + 9 Ones = 39

Q3 (c) 35 Tens

SOLUTION

35 Tens = 3 Hundreds + 5 Tens = 350

Q4 (d) 86 Tens

SOLUTION

86 Tens = 8 Hundreds + 6 Tens = 860

Q5 (e) 10 Tens and 1 One

SOLUTION

10 Tens = 1 Hundred
1 Hundred + 0 Tens + 1 One = 101

Q6 (f) 15 Tens and 23 Ones

SOLUTION

15 Tens = 150; 23 Ones = 23
150 + 23 = 173
Alternatively: 23 Ones = 2 Tens + 3 Ones; total Tens = 15 + 2 = 17 Tens = 1 Hundred + 7 Tens; so 1 Hundred + 7 Tens + 3 Ones = 173

Q7 (g) 34 Tens and 12 Ones

SOLUTION

34 Tens = 340; 12 Ones = 12
340 + 12 = 352
Th=0, H=3, T=5, O=2 → 352

Q8 (h) 19 Tens and 10 Ones

SOLUTION

10 Ones = 1 Ten
Total Tens = 19 + 1 = 20 Tens = 2 Hundreds
2 Hundreds + 0 Tens + 0 Ones = 200

Q9 (i) 2 Hundreds, 13 Tens and 7 Ones

SOLUTION

13 Tens = 1 Hundred + 3 Tens
Total Hundreds = 2 + 1 = 3
3 Hundreds + 3 Tens + 7 Ones = 337

Exercise 4.8 — Numbers Beyond 1000 — Fill in the Table

Q1 Look at the table and fill in the blanks. Complete the Th, H, T, O columns and Number Name for: 1001, 1002, 1003, 1005, 1038, 1100.

SOLUTION

1001: Th=1, H=0, T=0, O=1; Expanded: 1000+1; Name: One thousand one
1002: Th=1, H=0, T=0, O=2; Expanded: 1000+2; Name: One thousand two
1003: Th=1, H=0, T=0, O=3; Expanded: 1000+3; Name: One thousand three
1005: Th=1, H=0, T=0, O=5; Expanded: 1000+5; Name: One thousand five
1038: Th=1, H=0, T=3, O=8; Expanded: 1000+30+8; Name: One thousand thirty eight
1100: Th=1, H=1, T=0, O=0; Expanded: 1000+100; Name: One thousand one hundred
3019: Th=3, H=0, T=1, O=9; Expanded: 3000+10+9; Name: Three thousand nineteen

Exercise 4.9 — Write Numbers in Sequence — Forward and Backward

Q1 (a) Write the next three numbers forward: 1027, 1028, ___, ___, ___

SOLUTION

Counting forward by 1: 1029, 1030, 1031

Q2 (b) Write numbers forward and backward: 2008, 2009, ___, ___, ___

SOLUTION

Forward: 2010, 2011, 2012

Q3 (c) 4892, 4893, ___, ___, ___

SOLUTION

Counting forward by 1: 4894, 4895, 4896

Q4 (d) Forward and backward: ___, ___, 8002, 8003, ___, ___, ___

SOLUTION

Before 8002 (counting backward): 8001, 8000
After 8003 (counting forward): 8004, 8005, 8006
Full sequence: 8000, 8001, 8002, 8003, 8004, 8005, 8006

Exercise 4.10 — Let Us Play — Place Value Slider

Q1 (a) 1895 — increase the number by 1

SOLUTION

1895 + 1 = 1896

Q2 (b) 2785 — increase the number by 10

SOLUTION

2785 + 10 = 2795

Q3 (c) 3369 — decrease the number by 2

SOLUTION

3369 – 2 = 3367

Q4 (d) 5648 — decrease the number by 10

SOLUTION

5648 – 10 = 5638

Q5 (e) 6487 — increase the number by 20

SOLUTION

6487 + 20 = 6507

Exercise 4.11 — Let Us Think — Place Value Errors

Q1 Ram wrote 7 Thousand 0 Hundreds 2 Tens 4 Ones as 724. Is this correct? Write the correct number.

SOLUTION

Ram's answer 724 is WRONG. He forgot to include the Thousands digit.
7 Thousand = 7000
0 Hundreds = 0
2 Tens = 20
4 Ones = 4
Correct number: 7000 + 0 + 20 + 4 = 7024

Q2 Richa wrote 5 Thousand 6 Hundreds 0 Tens 3 Ones as 563. Is this correct? Write the correct number.

SOLUTION

Richa's answer 563 is WRONG. She dropped the Thousands and mixed up the digits.
5 Thousand = 5000
6 Hundreds = 600
0 Tens = 0
3 Ones = 3
Correct number: 5000 + 600 + 0 + 3 = 5603

Exercise 4.12 — Number Line

Q1 Which of these numbers lie between 2226 and 3226? Circle the correct answers: 3316, 3236, 2236, 2216, 3126, 3216

SOLUTION

A number lies strictly between 2226 and 3226 if it is greater than 2226 AND less than 3226.
3316: greater than 3226 → NOT between
3236: greater than 3226 → NOT between
2236: 2226 < 2236 < 3226 → YES
2216: less than 2226 → NOT between
3126: 2226 < 3126 < 3226 → YES
3216: 2226 < 3216 < 3226 → YES
Circle: 2236, 3126, 3216

Q2 (a) 1001 and 1038 are marked on the number line. Mark 1043, 1069, and 1084 on the same number line (scale: 1000 to 1100).

SOLUTION

The number line goes from 1000 to 1100, with tick marks at 1010, 1020, 1030, 1040, 1050, 1060, 1070, 1080, 1090.
1043: between 1040 and 1050, 3 units past 1040
1069: between 1060 and 1070, 9 units past 1060
1084: between 1080 and 1090, 4 units past 1080

Q3 (b) Mark on the number line (2000 to 2500): 2025, 2080, 2175, 2245, 2295, 2310, 2390, 2430, 2460

SOLUTION

The number line spans 2000 to 2500 with major ticks at 2100, 2200, 2300, 2400.
2025: just after 2000
2080: near 2100, slightly before it
2175: between 2100 and 2200, closer to 2200
2245: between 2200 and 2300, close to midpoint
2295: just before 2300
2310: just after 2300
2390: between 2300 and 2400, close to 2400
2430: between 2400 and 2500, closer to 2400
2460: between 2400 and 2500, close to midpoint

Q4 (c) Mark on the number line (5500 to 5725): 5512, 5548, 5590, 5636, 5673, 5695

SOLUTION

Scale ticks: 5500, 5525, 5550, 5575, 5600, 5625, 5650, 5675, 5700, 5725.
5512: between 5500 and 5525, close to 5500
5548: between 5525 and 5550, closer to 5550
5590: between 5575 and 5600, close to 5600
5636: between 5625 and 5650, close to 5625
5673: between 5650 and 5675, close to 5675
5695: between 5675 and 5700, close to 5700

Q5 (d) Mark on the number line (8500 to 9000): 8679, 8990, 8923, 8763

SOLUTION

Scale spans 8500 to 9000.
8679: between 8500 and 9000, closer to 8500 side; about 36% of the way
8763: between 8679 and 8923, roughly 53% of the way
8923: close to 9000, about 85% of the way
8990: very close to 9000, 98% of the way

Exercise 4.13 — Let Us Play — Arrow Cards

Q1 What cards are used to make 4085? Write it in expanded form and in words.

SOLUTION

4085 = 4000 + 0 + 80 + 5
Cards used: 4000, 80, 5 (the 0 hundreds card is not needed — 0 is a placeholder)
Expanded form: 4000 + 80 + 5
In words: Four thousand and eighty five

Q2 Find Me! Read the clues and find the numbers in the grid. (1) The number 3782. (2) Two thousand five hundred and seventy six. (3) A 4-digit number with all digits the same. (4) The smallest 4-digit number in the table. (5) The largest 4-digit number in the table. (6) A number more than 5000 and less than 5200. (7) A number between 5600 and 6300. (8) A 4-digit number all of whose digits can be found on a die.

SOLUTION

Answers grounded in the printed 7×8 digit grid on page 56. Numbers may be read left-to-right in a row OR top-to-bottom in a column. (1) 3782 — column 7 downward rows 1–4: digits 3, 7, 8, 2 (highlighted in the book). (2) 2576 — row 2 cols 5–8 AND row 3 cols 1–4: digits 2, 5, 7, 6. (3) 2222 — row 4 cols 5–8: all four digits are 2. (4) Smallest 4-digit number = 1011 — row 5 cols 4–7: digits 1, 0, 1, 1. (5) Largest 4-digit number = 9672 — column 8 rows 1–4: digits 9, 6, 7, 2. (6) More than 5000 and less than 5200 = 5010 — row 5 cols 2–5: digits 5, 0, 1, 0. (7) Between 5600 and 6300 = 5760 — row 3 cols 2–5: digits 5, 7, 6, 0. (8) All digits found on a die (1–6 only) = 1234 — row 1 cols 1–4: digits 1, 2, 3, 4.

Exercise 4.14 — Let Us Solve — Tokens (Th, H, T, O)

Q1 Use tokens of 1s, 10s, 100s, 1000s to identify the numbers and complete the table. (a) 6 Tens and 22 Ones

SOLUTION

22 Ones = 2 Tens + 2 Ones
Total Tens = 6 + 2 = 8 Tens
Th=0, H=0, T=8, O=2 → Number = 82

Q2 (b) 4 Tens and 12 Ones

SOLUTION

12 Ones = 1 Ten + 2 Ones
Total Tens = 4 + 1 = 5 Tens
Th=0, H=0, T=5, O=2 → Number = 52

Q3 (c) 3 Hundreds, 14 Tens, and 8 Ones

SOLUTION

14 Tens = 1 Hundred + 4 Tens
Total Hundreds = 3 + 1 = 4
Th=0, H=4, T=4, O=8 → Number = 448

Q4 (d) 12 Hundreds, 18 Tens, and 2 Ones

SOLUTION

18 Tens = 1 Hundred + 8 Tens
Total Hundreds = 12 + 1 = 13 Hundreds = 1 Thousand + 3 Hundreds
Th=1, H=3, T=8, O=2 → Number = 1382

Q5 (e) 1 Thousand, 5 Hundreds, 10 Tens, and 17 Ones

SOLUTION

17 Ones = 1 Ten + 7 Ones
Total Tens = 10 + 1 = 11 Tens = 1 Hundred + 1 Ten
Total Hundreds = 5 + 1 = 6
Th=1, H=6, T=1, O=7 → Number = 1617

Q6 2A. Circle the number that is bigger: (i) 30 or 300 (ii) 2 Ones or 2 Hundreds (iii) 6000 or 600 (iv) 5 Tens or 2 Thousands (v) 6000 or 3000 (vi) 7 Tens or 4 Hundreds

SOLUTION

(i) 30 or 300 → 300 is bigger
(ii) 2 Ones (=2) or 2 Hundreds (=200) → 200 is bigger
(iii) 6000 or 600 → 6000 is bigger
(iv) 5 Tens (=50) or 2 Thousands (=2000) → 2000 is bigger
(v) 6000 or 3000 → 6000 is bigger
(vi) 7 Tens (=70) or 4 Hundreds (=400) → 400 is bigger

Q7 2B. Circle the number that is smaller: (i) 30 or 300 (ii) 2 Ones or 2 Hundreds (iii) 6000 or 600 (iv) 5 Tens or 2 Thousands (v) 6000 or 3000 (vi) 7 Tens or 4 Hundreds

SOLUTION

(i) 30 or 300 → 30 is smaller
(ii) 2 Ones or 2 Hundreds → 2 Ones (=2) is smaller
(iii) 6000 or 600 → 600 is smaller
(iv) 5 Tens (=50) or 2 Thousands (=2000) → 50 is smaller
(v) 6000 or 3000 → 3000 is smaller
(vi) 7 Tens (=70) or 4 Hundreds (=400) → 70 is smaller

Exercise 4.15 — Comparing Numbers — Let Us Do

Q1 Compare the following pairs using < and >. (a) 2190 and 2910

SOLUTION

Both have Th=2. Compare Hundreds: 2190 has H=1, 2910 has H=9.
1 < 9, so 2190 < 2910

Q2 (b) 7087 and 7088

SOLUTION

Th=7 (same), H=0 (same), T=8 (same). Compare Ones: 7 vs 8.
7 < 8, so 7087 < 7088

Q3 (c) 1009 and 9001

SOLUTION

Compare Thousands: 1009 has Th=1, 9001 has Th=9.
1 < 9, so 1009 < 9001

Q4 (d) 982 and 1024

SOLUTION

982 is a 3-digit number; 1024 is a 4-digit number.
Any 4-digit number is greater than any 3-digit number.
982 < 1024

Q5 Order the prices from smallest to biggest (increasing order): Rs 1099, Rs 1986, Rs 1899

SOLUTION

Compare: 1099 vs 1899 vs 1986
1099 < 1899 < 1986
Increasing order: Rs 1099 < Rs 1899 < Rs 1986

Q6 Arrange the runs scored by women ODI cricketers in increasing order: Debbie Hockley 4064, Suzie Bates 5114, Karen Rolton 4814, Mithali Raj 7805, Charlotte 6002

SOLUTION

Compare all five scores:
4064 < 4814 < 5114 < 6002 < 7805
Increasing order: Debbie Hockley (4064), Karen Rolton (4814), Suzie Bates (5114), Charlotte (6002), Mithali Raj (7805)

Q7 Arrange the mountain ranges in decreasing order of height (highest to lowest): Kangchenjunga 8586 m, Mullayanagiri 1930 m, Chaukhamba I 7138 m, Bailadila Range 1276 m, Nanda Devi 7816 m, K2 8611 m, Kalsubai 1646 m

SOLUTION

Decreasing order:
K2 (8611) > Kangchenjunga (8586) > Nanda Devi (7816) > Chaukhamba I (7138) > Mullayanagiri (1930) > Kalsubai (1646) > Bailadila Range (1276)

Q8 Use <, =, > to compare. (a) 2 Tens + 4 Thousands + 3 Hundreds vs 2043

SOLUTION

2 Tens + 4 Thousands + 3 Hundreds = 4000 + 300 + 20 = 4320
4320 vs 2043
4320 > 2043

Q9 (b) 2 Tens + 4 Thousands + 3 Hundreds vs 4320

SOLUTION

2 Tens + 4 Thousands + 3 Hundreds = 4000 + 300 + 20 = 4320
4320 = 4320

Q10 (c) 2 Thousands + 9 Hundreds + 9 Tens + 9 Ones vs 3000

SOLUTION

2000 + 900 + 90 + 9 = 2999
2999 vs 3000
2999 < 3000

Q11 (d) 15 Ones + 9 Tens + 3 Hundreds vs 1593

SOLUTION

15 + 90 + 300 = 405
405 vs 1593
405 < 1593

Q12 (e) 5000 + 30 + 4 vs 5034

SOLUTION

5000 + 30 + 4 = 5034
5034 = 5034

Q13 (f) 5000 + 300 + 4 vs 5340

SOLUTION

5000 + 300 + 4 = 5304
5304 vs 5340
5304 < 5340

Q14 Fill the blanks with digits 0–9 such that the numbers meet the condition. (a) $7___3 < 768_$

SOLUTION

We need a 4-digit number of the form 7XX3 that is less than 768Y.
Example: 7003 < 7680 → insert 0 for XX and 0 for Y
Check: 7003 < 7680 ✓
Other valid answers: 7013, 7113, 7203, etc.

Q15 (b) 853_ < 8_3_

SOLUTION

We need 853A < 8B3C for some digits.
Example: 8530 < 8730 → A=0, B=7, C=0
Check: 8530 < 8730 ✓
Other valid answers: 8531 < 8532 (A=1, B=5 is same hundred, C=2 > 1)

Q16 (c) $__2__1 < 5__2__$

SOLUTION

We need a number of the form XY2Z1 (5 digits?) — more likely 4-digit: X2Y1 < 5Z2W
Example: 3201 < 5020
Check: 3201 < 5020 ✓
Note: Many valid digit combinations exist. Any thousands digit less than 5 works.

Exercise 4.16 — Challenge

Q1 There are 99 numbers strictly between 700 and 800. How many numbers are strictly between 7000 and 8000? Circle: 900, 999, or 1000?

SOLUTION

Numbers strictly between 700 and 800: 701, 702, ..., 799 → count = 799 – 700 – 1 + 1 = 99. ✓
Numbers strictly between 7000 and 8000: 7001, 7002, ..., 7999 → count = 7999 – 7000 – 1 + 1 = 999
Answer: 999

Exercise 4.17 — Let Us Explore — Four-Digit Numbers

Q1 Make as many four-digit numbers as possible using the digits 2, 3, 4, 7 without repetition. There are 24 different numbers. Arrange them in decreasing order.

SOLUTION

With 4 digits and no repetition: 4 × 3 × 2 × 1 = 24 numbers.
Starting with 7: 7432, 7423, 7342, 7324, 7243, 7234
Starting with 4: 4732, 4723, 4372, 4327, 4273, 4237
Starting with 3: 3742, 3724, 3472, 3427, 3274, 3247
Starting with 2: 2743, 2734, 2473, 2437, 2374, 2347
Decreasing order: 7432, 7423, 7342, 7324, 7243, 7234, 4732, 4723, 4372, 4327, 4273, 4237, 3742, 3724, 3472, 3427, 3274, 3247, 2743, 2734, 2473, 2437, 2374, 2347

Q2 Compare with your friends to find what other numbers they have made. How do you know that you have all 24 possible numbers?

SOLUTION

Systematic method: fix the thousands digit (4 choices), then arrange the remaining 3 digits in all orders (3! = 6 ways each).
4 choices × 6 arrangements = 24 total. If you have exactly 6 numbers for each of the 4 thousands digits and none repeat, you have all 24.
Discuss your method with classmates to verify.