

Ascending and Descending Order

Unit: Number System & Notation - Student Practice Worksheet

Overview: Ms. Rao filled a place-value table with 853 and 835. Both have 8 hundreds — tied. At tens, 5 beats 3, so 853 is greater. Same comparisons, reversed order list: that is descending.

Practice Questions (30 Total)

Section A - Easy

Q1. The number line shows 8, 3, 6, 1 as dots. Using it, arrange them in ascending order.



- ☐ A. 1, 3, 6, 8
- ☐ B. 8, 6, 3, 1
- ☐ C. 3, 1, 6, 8
- ☐ D. 6, 8, 1, 3

Q2. If a list is in ascending order and you reverse it, what order is it now in?

- ☐ A. Still ascending
- ☐ B. Random
- ☐ C. It has no order
- ☐ D. Descending

Q3. In the descending list 61, 58, 52, 45, 45, 39, which number is largest?

- ☐ A. 39
- ☐ B. 61
- ☐ C. 45
- ☐ D. 52

Q4. The number line shows 15, 51, 5, 105 as dots. Using it, arrange them in descending order.



- ☐ A. 5, 15, 51, 105
- ☐ B. 105, 51, 15, 5
- ☐ C. 51, 105, 5, 15
- ☐ D. 15, 5, 105, 51

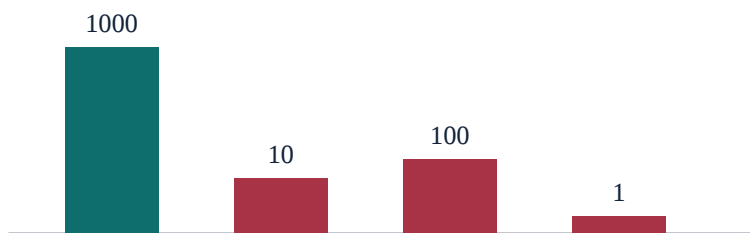
Q5. Two runners both finished in 45 seconds. In an ascending list of times, where do these tied values go?

- ☐ A. Next to each other, in either order
- ☐ B. They cannot both be listed
- ☐ C. One must be changed to a different number
- ☐ D. Always at the very start

Q6. Arrange in descending order: 8, 3, 6, 1.

- ☐ A. 1, 3, 6, 8
- ☐ B. 8, 6, 3, 1
- ☐ C. 6, 8, 3, 1
- ☐ D. 3, 6, 1, 8

Q7. The bar chart shows 1000, 10, 100, 1, bar height = value. Using it, arrange them in ascending order.



- ☐ A. 1000, 100, 10, 1
- ☐ B. 10, 1, 1000, 100
- ☐ C. 1, 10, 100, 1000
- ☐ D. 1, 100, 10, 1000

Q8. Which list is in ascending order?

- ☐ A. 9, 7, 5, 3
- ☐ B. 5, 3, 9, 7
- ☐ C. 3, 5, 7, 9
- ☐ D. 7, 9, 3, 5

Q9. Which list is in descending order?

- ☐ A. 2, 4, 6, 8
- ☐ B. 6, 2, 8, 4
- ☐ C. 4, 8, 2, 6
- ☐ D. 8, 6, 4, 2

Q10. In the ascending list 39, 45, 45, 52, 58, 61, which number is smallest?

- ☐ A. 39
- ☐ B. 45
- ☐ C. 61
- ☐ D. 58

Section B - Medium

Q11. The number line shows 4.5, 4.05, 4.5, 4.15 as dots (assume all valid readings). Using it, arrange them in ascending order.



- ☐ A. 4.5, 4.5, 4.15, 4.05
- ☐ B. 4.05, 4.5, 4.15, 4.5
- ☐ C. 4.05, 4.15, 4.5, 4.5
- ☐ D. 4.15, 4.05, 4.5, 4.5

Q12. Kabir keeps re-scanning an unsorted list every time he's asked a new question about it. What is the better approach Anaya used?

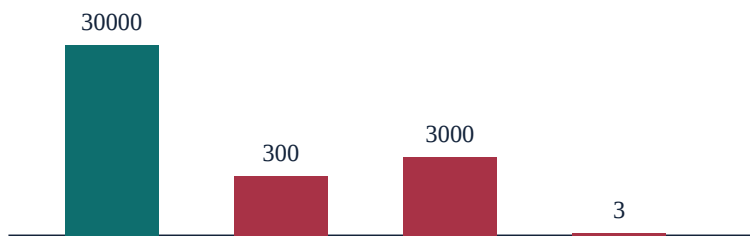
- ☐ A. Guess the answer each time
- ☐ B. Sort the list once, then read off positions

- ☐ C. Re-scan faster each time
- ☐ D. Only sort if there are fewer than 5 numbers

Q13. In the ascending list 39, 45, 45, 52, 58, 61, which time is in 3rd place (3rd fastest)?

- ☐ A. 45
- ☐ B. 52
- ☐ C. 39
- ☐ D. 58

Q14. The bar chart shows 3000, 300, 30000, 3 by height. Using it, arrange them in descending order.



- ☐ A. 3, 300, 3000, 30000
- ☐ B. 300, 3000, 3, 30000
- ☐ C. 30000, 3000, 300, 3
- ☐ D. 3000, 30000, 3, 300

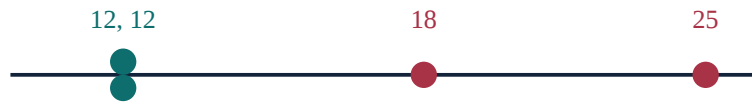
Q15. A list has 7 numbers in descending order. What position is the smallest number in?

- ☐ A. 1st (first)
- ☐ B. 4th (middle)
- ☐ C. It could be anywhere
- ☐ D. 7th (last)

Q16. In the descending list 61, 58, 52, 45, 45, 39, who is in 2nd place (2nd from the top of this list)?

- ☐ A. 61
- ☐ B. 58
- ☐ C. 52
- ☐ D. 45

Q17. The number line shows 12, 12, 18, 25 -- notice the two dots stacked at 12. Using it, is 12, 12, 18, 25 a valid ascending list?



- ☐ **A.** No — a number can never repeat in a list
- ☐ **B.** Yes — the tied 12s do not break the order
- ☐ **C.** No — the 12s must be split apart by another number
- ☐ **D.** Only valid if all four numbers are different

Q18. In an ascending list, where does the largest value always sit?

- ☐ **A.** At the very start
- ☐ **B.** In the exact middle
- ☐ **C.** Nowhere fixed — it varies
- ☐ **D.** At the very end

Q19. In a descending list, where does the smallest value always sit?

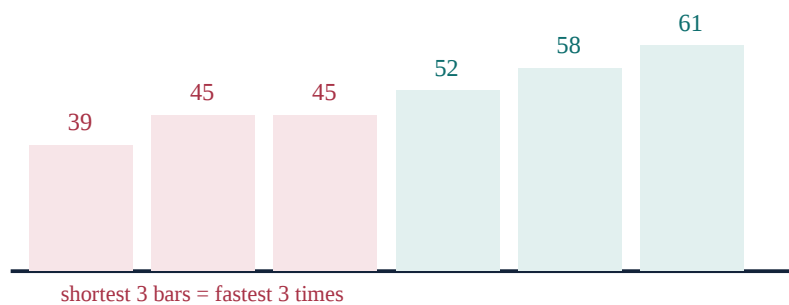
- ☐ **A.** At the very end
- ☐ **B.** At the very start
- ☐ **C.** In the exact middle
- ☐ **D.** Nowhere fixed — it varies

Q20. A student sorts a list ascending as 12, 12, 18, 25. Which position holds the value 18?

- ☐ **A.** 1st
- ☐ **B.** 2nd
- ☐ **C.** 3rd
- ☐ **D.** 4th

Section C - Challenge

Q21. The bar chart shows the 6 runners' times, shortest bar = fastest time. The 3 shortest bars are highlighted. Using it, which times qualify if the top 3 fastest go through?



- ☐ A. 39, 45, 45
- ☐ B. 52, 58, 61
- ☐ C. 45, 52, 58
- ☐ D. 39, 61, 45

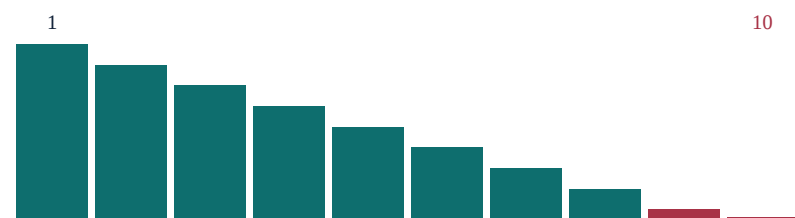
Q22. Using the same 6 runners, which two times are the middle values, since the count is even?

- ☐ A. 52 alone is the middle value
- ☐ B. 45 and 52, positions 3 and 4
- ☐ C. 45 alone is the middle value
- ☐ D. 58 alone is the middle value

Q23. A list contains three identical values, say all equal to 20, among other distinct numbers. How many valid ascending arrangements of just those three 20s (relative to each other) are there?

- ☐ A. Any of the 6 orderings among themselves — all count as valid since they are equal
- ☐ B. Only exactly one specific ordering is valid
- ☐ C. None — repeated values cannot appear in a sorted list
- ☐ D. Exactly 3 orderings, no more

Q24. The step diagram shows 10 descending values, none repeated, tallest step first. Using it, what is the difference in rank between the largest and smallest values?



- ☐ A. 10 positions apart

- ☐ B. 1 position apart
- ☐ C. 5 positions apart
- ☐ D. 9 positions apart

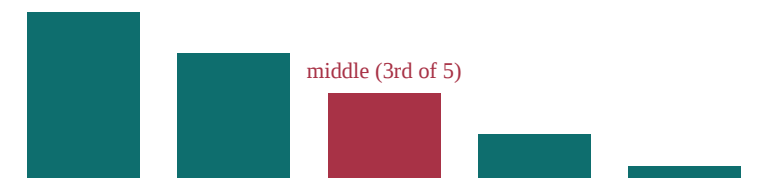
Q25. Anaya sorts a list ascending, then a new runner's time is added that is smaller than everyone's current time. Where must it go to keep the list sorted?

- ☐ A. At the very start
- ☐ B. At the very end
- ☐ C. In the exact middle
- ☐ D. Anywhere is fine

Q26. A list is sorted descending. A new value equal to the current largest value is added. Where can it correctly go?

- ☐ A. Only strictly after it, never before
- ☐ B. Right next to the existing largest value, in either order
- ☐ C. Only at the very end of the whole list
- ☐ D. It cannot be added since it is a duplicate

Q27. The step diagram shows an odd-count (5-step) descending list, with its exact middle highlighted. If this list is reversed to ascending, what happens to that middle step?



- ☐ A. It moves to the very start of the reversed list
- ☐ B. It moves to the very end of the reversed list
- ☐ C. It stays in exactly the same middle position in both lists
- ☐ D. It disappears when reversed

Q28. A teacher has 20 test scores and wants to know both the top 5 and bottom 5 scores quickly and repeatedly. What is the most efficient approach?

- ☐ A. Re-scan all 20 scores every single time a question is asked
- ☐ B. Only ever look at the first score

- ☐ C. Ask a different student each time
- ☐ D. Sort the list once, then read the first 5 and last 5 positions

Q29. A list of 5 distinct numbers is given in ascending order. If you swap the 2nd and 4th positions, is the resulting list still in ascending order?

- ☐ A. Yes, swapping never affects the order
- ☐ B. Yes, but only for lists of exactly 5 numbers
- ☐ C. No, unless those two values happened to be equal
- ☐ D. It depends only on the 1st position

Q30. Ms. Rao says sorting data before answering questions is 'worth doing before, not after.' What is the real cost she is pointing out?

- ☐ A. Sorted lists take up more storage space
- ☐ B. Re-scanning an unsorted list repeatedly wastes far more effort than sorting it once
- ☐ C. Unsorted lists are always more accurate
- ☐ D. There is no real difference either way

Answer Key

- Q1:** (A) (a) 1, 3, 6, 8. Reading the number line left to right gives smallest to largest.
- Q2:** (D) (d) Descending. Reversing smallest-to-largest gives largest-to-smallest.
- Q3:** (B) (b) 61. It sits first in the descending list, so it is the largest.
- Q4:** (B) (b) 105, 51, 15, 5. Reading the number line right to left gives largest to smallest.
- Q5:** (A) (a) Next to each other, in either order. Equal values can sit beside each other without changing correctness.
- Q6:** (B) (b) 8, 6, 3, 1. Largest to smallest.
- Q7:** (C) (c) 1, 10, 100, 1000. The bar chart's shortest bar is 1 and the tallest is 1000 -- reading bar height smallest to tallest gives ascending order.
- Q8:** (C) (c) 3, 5, 7, 9. Each number is larger than the one before it.
- Q9:** (D) (d) 8, 6, 4, 2. Each number is smaller than the one before it.
- Q10:** (A) (a) 39. It sits first in the ascending list, so it is the smallest.
- Q11:** (C) (c) 4.05, 4.15, 4.5, 4.5. The number line's leftmost dot is smallest -- reading left to right gives 4.05, 4.15, then the two tied 4.5s together.
- Q12:** (B) (b) Sort the list once, then read off positions. One sort makes every later question a simple lookup.
- Q13:** (A) (a) 45. Counting from the start: 39 (1st), 45 (2nd), 45 (3rd).
- Q14:** (C) (c) 30000, 3000, 300, 3. The bar chart's tallest bar is 30000 and shortest is 3 -- reading tallest to shortest gives descending order.
- Q15:** (D) (d) 7th (last). Descending order ends with the smallest value.
- Q16:** (B) (b) 58. Counting from the top of the descending list: 61 (1st), 58 (2nd).
- Q17:** (B) (b) Yes — the tied 12s do not break the order. The two dots stacked at 12 are still both smaller than 18 and 25.
- Q18:** (D) (d) At the very end. Ascending order builds up to the largest value last.
- Q19:** (A) (a) At the very end. Descending order counts down to the smallest value last.
- Q20:** (C) (c) 3rd. The list reads 12 (1st), 12 (2nd), 18 (3rd), 25 (4th).
- Q21:** (A) (a) 39, 45, 45. The chart's own 3 shortest (highlighted) bars are the 3 fastest times.
- Q22:** (B) (b) 45 and 52, positions 3 and 4. With an even count, the middle falls between two positions, not one.
- Q23:** (A) (a) Any of the 6 orderings among themselves — all count as valid since they are equal. Since all three values are identical, swapping them in any of the $3! = 6$ arrangements keeps the overall list correctly sorted.
- Q24:** (D) (d) 9 positions apart. The step diagram's tallest step is position 1 and the shortest is position 10, a gap of 9.

Q25: (A) (a) At the very start. A new smallest value must sit before every existing value in an ascending list.

Q26: (B) (b) Right next to the existing largest value, in either order. Ties are free to sit beside each other without breaking order.

Q27: (C) (c) It stays in exactly the same middle position in both lists. The diagram's highlighted 3rd-of-5 step is 3rd from either end, so reversing leaves it untouched.

Q28: (D) (d) Sort the list once, then read the first 5 and last 5 positions. This is exactly the efficiency Anaya demonstrated in the story.

Q29: (C) (c) No, unless those two values happened to be equal. Moving a bigger value earlier (or a smaller value later) breaks the ascending pattern for distinct numbers.

Q30: (B) (b) Re-scanning an unsorted list repeatedly wastes far more effort than sorting it once. One upfront sort turns every later question into a quick lookup instead of a fresh search.

You've got this! Keep learning and shining! - Ruchi Math Coaching