Chapter 11: Data Handling

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Exercise 11.1 — Let us Do — Favourite Colours

Q1 Look at the picture. Complete the table and fill in the blanks.

A. The most liked colour is _____.

B. The least liked colour is _____.

C. Yellow colour is liked more than _____.

D. _____ colour is liked more than green.

E. _____ colour is liked less than _____.

SOLUTION

Count children by clothing colour from the picture: Red=2, Green=3, Blue=5, Yellow=2. Table: Red=2, Green=3, Blue=5, Yellow=2. A. Blue. B. Red (or Yellow). C. Yellow is liked more than Red. D. Blue colour is liked more than green. E. Red colour is liked less than Blue.

Exercise 11.2 — Let us Do — Picnic Day (Fruit Party)

Q1 Children are having a fruit party. Complete the table and fill in the blanks.

A. How many children are there in the picture?

B. Number of children who like apples is _____.

C. Most liked fruit is _____.

D. Least liked fruit is _____.

E. Number of children who like guava is _____ (more than / less than / equal to) the number who like apple.

F. The number who like apple is _____ (more than / less than / equal to) the number who like banana.

G. The number who like orange is _____ (more than / less than / equal to) the number who like kiwi.

SOLUTION

Count each child by the fruit they hold in the picnic picture: Banana=3, Orange=3, Apple=4, Kiwi=2, Guava=2. Table: Banana=3, Orange=3, Apple=4, Kiwi=2, Guava=2. A. 14 children. B. 4 children like apples. C. Apple (most liked). D. Kiwi or Guava (least liked, both=2). E. Guava (2) is less than Apple (4) — less than. F. Apple (4) is more than Banana (3) — more than. G. Orange (3) is more than Kiwi (2) — more than.

Exercise 11.3 — Let us Do — Mode of Coming to School

Q1 Discuss the picture and fill the table for 'Mode of coming to school' with the number of students for each mode.

SOLUTION

Count students for each transport mode from the school-scene picture. On-foot=8 (given in table). Autorickshaw: count children inside the auto = 6. Bicycle: count children on bicycles = 4. Bike: count children on the motorbike = 2. Bus: count children visible through bus windows = 7. Table: On-foot=8, Autorickshaw=6, Bicycle=4, Bike=2, Bus=7.

Q2 Read the table and draw faces (= 1 student) in the chart to show the number of students coming by each mode. Then fill in the blanks.

A. Most number of students come to school by _____.
B. Least number of students come to school by _____.
C. Students using bus is _____ (less / more) than students using autorickshaw.
D. Students using bike is _____ (more / less) than students using bicycle.
E. Students using _____ is less than students using _____.
F. Students using _____ is more than students using _____.

SOLUTION

Draw faces from the table counts (On-foot=8, Autorickshaw=6, Bus=7, Bike=2, Bicycle=4). A. Most students come by On-foot (8). B. Least students come by Bike (2). C. Bus (7) is more than Autorickshaw (6) — more. D. Bike (2) is less than Bicycle (4) — less. E. Bike is less than Bicycle (or any smaller mode vs larger). F. Bus is more than Autorickshaw (or any larger mode vs smaller).

Exercise 11.4 — Let us Do — Games we Play

Q1 Look at the picture and fill the table for games (Gilli-danda, Kabaddi, Pithu, Football, Cricket) with the number of students who like each game.

SOLUTION

Count students playing each game in the playground picture. Cricket (bat+ball icon)=4, Football (soccer ball icon)=6, Pithu (stones icon)=3, Gilli-danda (stick icon)=3, Kabaddi (mat icon)=5. Fill the table: Cricket=4, Football=6, Pithu=3, Gilli-danda=3, Kabaddi=5.

Q2 Use the table to draw faces (= 1 student) in the chart for each game. Then fill in the blanks.

A. The most liked game is _____.

B. The least liked game is _____.

C. Pithu is liked more than _____.

D. _____ is liked more than football.

SOLUTION

Draw one face per student from the table (Cricket=4, Football=6, Pithu=3, Gilli-danda=3, Kabaddi=5). A. Most liked game = Football (6 students). B. Least liked game = Pithu or Gilli-danda (3 students each). C. Pithu (3) is liked more than Gilli-danda (3 — equal) — if both are 3, Pithu is liked more than Cricket? Use your filled table. D. Kabaddi (5) is liked more than Football (6)? No — Cricket (4) is liked more than Pithu (3) as example. D. Kabaddi is liked more than football if Kabaddi>Football; otherwise Cricket is liked more than Pithu. (Answers flow from the counts in q1.)

Exercise 11.5 — Let us Do — Class Survey (Vegetables and Families)

Q1 A. Ask your friends about the vegetables they like the most and complete the table.
B. Read the table and fill in the blanks:
i. Most liked vegetable is _____.
ii. Least liked vegetable is _____.
iii. _____ is liked more than _____.
iv. _____ is liked less than _____.

SOLUTION

This is a class-survey activity — go around and ask your classmates which vegetable they like most.
Make a tally mark for each answer in the table.
B. After the table is complete, read your own data:
i. The vegetable with the highest count is the most liked.
ii. The vegetable with the lowest count is the least liked.
iii–iv. Compare any two vegetables from your table to fill these blanks.

Q2 C. Ask your friends about the number of family members living in their homes. Fill in the table (1 People, 2 People, 3 People, 4 People, 5 People, …). Then answer:
i. Most families have _____ people in their homes.
ii. The least number of people living in a home is _____.
iii. The number of families having 4 people is _____.
iv. The number of families having more than 4 people is _____.

SOLUTION

Survey your classmates and record how many people live in each friend's home.
Tally the count for each group (1 person, 2 people, 3 people, etc.).
i. The group with the highest tally count = most common family size.
ii. Find the smallest group size that has at least one family.
iii. Read the tally for '4 People' row.
iv. Add the tallies for all rows with more than 4 people.

Exercise 11.6 — Project Work — Grandparents Survey

Q1 Visit nearby families and record how many have grandparents living with them. Fill in the table: Both grandparents / Only female grandparent / Only male grandparent / No grandparents.

A. How many families did you visit?

B. Number of families living with both grandparents?

C. How many families live with one grandparent?

D. How many families live without grandparents?

SOLUTION

Before visiting, discuss with your class what questions you will ask.

Visit families and record in the table with tally marks.

A. Count all rows to get the total families visited.

B. Read the 'Both grandparents' row total.

C. Add the 'Only female' and 'Only male' rows.

D. Read the 'No grandparents' row total.

Exercise 11.7 — Puzzles

Q1 A. Draw lines to connect each pair of similar shapes. The lines must not cross or touch each other and must not be diagonal.

SOLUTION

Puzzle A — Connect each pair of matching shapes with straight horizontal/vertical lines that do not cross. Pairs in the grid: two Stars (★), two Squares (■), two Circles (●), two Crescents (C), two Triangles (▲), two small Rectangles (▬). Trace a non-crossing path for each matching pair through the empty grid cells. Each path must use only horizontal and vertical steps.

Q2 B. Complete the pattern shown in the picture (involves shapes and numbers 1, 2, 3, 4).

SOLUTION

Puzzle B — Pattern: 2 + 2 = 4 (top row; blank = 2). The column shows +1 then 1. Bottom row: 1 + 3 = 4 (blank = 4). The missing number in the top row is 2. The missing number at the bottom-right is 4.

Q3 C. Think and complete the visual pattern (two parts i and ii).

SOLUTION

Puzzle C. Part i: Rule — outer shape and inner shape swap. Circle with square inside → square with circle inside. Star/sun with circle inside → the answer is a circle with star/sun inside. Answer: option (c) — dark circle with red star shape inside. Part ii: The curved shapes encode how many curves/strokes they resemble. ɔ (like backwards 5) → 5. ə (like backwards 6) → 6. 7 (digit seven) → 7. Answers: ə → 6, 7 → 7.

Q4 D. Find the number:
Think of a number → Double that number → Add eight → Minus half of that number → Minus the number you started with. Is the answer 4?

SOLUTION

Let the number you think of = x.
Double it: 2x.
Add 8: 2x + 8.
Half of (2x + 8) = x + 4. Subtract it: (2x + 8) − (x + 4) = x + 4.
Subtract the number you started with: (x + 4) − x = 4.
The answer is always 4, no matter what number you start with!

Q5 E. Look at the picture. How many different ways can the ant return to its home (anthill)?

SOLUTION

Puzzle E — Ant's staircase grid path. The grid is a right-triangle staircase (3 steps). The ant starts at the bottom corner and the anthill is at the top corner. Moving only left or up along the grid lines. Total distinct paths = 6 ways.

Q6 F. Find the number names from 11 to 20 in the word search.

SOLUTION

Puzzle F — Word search. Find number names 11 to 20 in the grid. Located: SIXTEEN (row 1 across), FIFTEEN (row 3 across), FOURTEEN (row 4 across), TWELVE (row 5 across), EIGHTEEN (row 9 across), SEVENTEEN (row 10 across). Also find ELEVEN, THIRTEEN, NINETEEN, TWENTY hidden in the remaining rows (across or down). Circle each word as you find it.

Q7 G. Identify the appropriate shadow image for each object (6 objects shown).

SOLUTION

Puzzle G — Shadow matching. The bug/insect has a large round body, small round head above it, 3 arms on each side raised upward, two small antennae at top, and two legs at the bottom. The correct shadow must match all these features. Shadow 2 best matches the original — it has the same arm spread (3 on each side), correct head and body proportions. Answer: Shadow 2.

Q8 H. In how many different ways can the cat return to its house?

SOLUTION

Puzzle H — Cat's paths to house. The figure shows a rectangle with a diagonal line inside and arrows on the edges indicating directions. The cat can return via: (1) along the bottom edge then up the right side, or (2) up the left side then along the top edge. The diagonal is one additional route. Answer: 2 different ways (going along the two sides of the rectangle).

Q9 I. Try to make two squares by removing two matchsticks.

SOLUTION

Puzzle I — Matchstick puzzle. The figure shows 4 squares arranged in a 2×2 grid (12 matchsticks total, sharing inner sides). To make exactly 2 squares: remove the 2 inner shared matchsticks (the middle vertical stick and the middle horizontal stick that form the cross in the centre). This leaves 2 separate 1×1 squares that share only a corner point. Answer: Remove the 2 inner matchsticks (the shared central horizontal and the shared central vertical stick).

Q10 J. Who am I? I am in a bicycle, and in a car and a bus. I make all vehicles run. They can't move if I am flat. What is my shape?

SOLUTION

The riddle describes a tyre — it is found in bicycles, cars, and buses.
A tyre is round.
Circle (Round shape)

Q11 K. Which balls will you select to make a total of 30? Balls are numbered: 1, 3, 5, 7, 9, 11, 13, 15.

SOLUTION

Try adding different combinations of the balls.
Notice that all the numbers are odd. The sum of an odd number of odd numbers is always odd, not even.
Explore selecting four balls: for example, 3 + 7 + 9 + 11 = 30. Check: 3+7=10, 10+9=19, 19+11=30. Yes!
Another option: 1 + 5 + 11 + 13 = 30. Check: 1+5=6, 6+11=17, 17+13=30. Yes!
One possible answer: 3 + 7 + 9 + 11 = 30

Q12 L. Make two different two-digit numbers using only one digit.

SOLUTION

Pick any single digit, for example 3.
Use it twice: 33 is a two-digit number using only the digit 3.
You can also write it a different way by thinking of it as 3 tens + 3 ones.
Example with digit 5: the two-digit number is 55.
Any repeated-digit number like 11, 22, 33, 44, 55, 66, 77, 88, or 99 is a valid answer.
Example: using digit 3 → 33

Q13 M. Draw a path so that the hungry giraffe can reach the tree.

SOLUTION

Puzzle M — Giraffe maze. Starting from the top-left (red arrow entry), navigate through the maze corridors to reach the tree at the bottom-right (red arrow exit). The correct path goes: right from entry → down through the left passages → across the middle → down toward the bottom-right → exit to the tree. Trace the only open path through the maze walls to connect the giraffe to the tree.

Q14 N. Look at the giraffe picture and write the answers.

i. Name the animal the giraffe met first on the path.

ii. Name the animal the giraffe met last.

iii. Have you ever lost your way to home?

iv. What do you do to remember your way home?

SOLUTION

Puzzle N — Based on the maze path in M. i. First animal the giraffe met = Squirrel (positioned in the upper-right area, encountered early on the path going right from the entrance). ii. Last animal the giraffe met = Mouse (positioned in the lower-left area, close to the exit path before reaching the tree). iii–iv. Personal reflection — answers vary by each child's own experience.

Q15 O. How many rectangles can be made after joining the dots given below? (Hint: A square is also a type of rectangle.)

SOLUTION

Puzzle O — Rectangles from a 3×3 dot grid (which forms a 2×2 array of cells). Count all rectangles including squares: 1×1 squares=4, 2×1 rectangles (horizontal)=2, 1×2 rectangles (vertical)=2, 2×2 square=1. Total = 4+2+2+1 = 9 rectangles. Answer: 9.

Q16 P. Complete these by using addition or subtraction of numbers. (Number chains given: one chain has 3→9→…→13→19; another has 6+…=18–9.)

SOLUTION

Puzzle P — Hexagon number chains. The blue hexagon shows two outer expressions 18−9=9 and 6+3=9 both equalling the centre value 9. For the pink hexagon (centre=13): fill outer expressions that equal 13, e.g. 20−7 and 6+7. For the green hexagon (centre=19): fill outer expressions that equal 19, e.g. 10+9 and 20−1. Any pair of expressions summing/subtracting to give the centre value is correct.

Q17 Q. A shepherd has 4 sheep and 4 dogs. Divide the garden into 4 areas so that each area contains one tree, one sheep, and one dog.

SOLUTION

Puzzle Q — Garden division. The oval garden contains 4 trees, 4 sheep (some white, some black/dark), and 4 dogs arranged in a rough circle. Draw 2 dividing lines (one roughly vertical, one roughly horizontal) crossing in the centre to create 4 sections. Each section must contain exactly 1 tree, 1 sheep, and 1 dog. Adjust the lines so each quadrant captures one of each.

Q18 R. Who am I? (A mirror can help you) — four mirror-image puzzles (i, ii, iii, iv).

SOLUTION

Puzzle R — Mirror image riddle. Place a mirror along the dotted line (vertical axis) of each pair to see the hidden number. i. Mirrored '4' next to '4' → together they form 44. ii. Mirrored shape next to '8' → 38. iii. Mirrored '9' next to '6' → 96. iv. Mirrored '1' next to '7' → 17. Answers: i=44, ii=38, iii=96, iv=17.

Q19 S. Arrange the numbers 1 to 7 so that all three arms of the figure have the same total.

SOLUTION

The total of 1+2+3+4+5+6+7 = 28.
Place 4 in the centre (it is shared by all three arms).
Each arm needs the same total. With centre 4: (28 + 4×2) ÷ 3 = 36 ÷ 3 = 12 per arm.
Each arm (including centre 4) must sum to 12, so the two outer numbers in each arm sum to 8.
Pairs that sum to 8: (1,7), (2,6), (3,5).
Arm 1: 1 — 4 — 7 (sum = 12). Arm 2: 2 — 4 — 6 (sum = 12). Arm 3: 3 — 4 — 5 (sum = 12).
Centre = 4; Arms: 1–4–7, 2–4–6, 3–4–5 (each arm sums to 12)

Q20 T. Let us divide a 6-metre-long cloth into pieces. If one metre is cut every time, how many times should we cut it?

SOLUTION

After 1st cut: 1 m piece + 5 m remaining.
After 2nd cut: 1 m piece + 4 m remaining.
After 3rd cut: 1 m piece + 3 m remaining.
After 4th cut: 1 m piece + 2 m remaining.
After 5th cut: two pieces of 1 m each — done!
We get 6 pieces of 1 m by making 5 cuts.
5 cuts

Q21 U. I think of a number and double it. If my answer is 18, then what was the number?

SOLUTION

Let the number = ?
Double the number = 18.
So the number = 18 ÷ 2 = 9.
9

Q22 V. Press 10 keys on a calculator to make 28.

SOLUTION

This is an open-ended puzzle — many answers are possible.
One example: press 1, +, 2, +, 3, +, 4, +, 9, = → that is 10 key presses and 1+2+3+4+9 = 19 (not 28).
Try: 5, +, 6, +, 7, +, 1, 0, = → 10 key presses and 5+6+7+10 = 28. Yes!
Encourage trying different combinations of numbers and operations.
Example: 5 + 6 + 7 + 10 = 28 (10 key presses)