

Data Handling and Presentation — Word Problems (Difficult)

Word Problems Worksheet — Set 1

Name:	Class: 6	Section:	Date:
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Instructions: These are challenging, real-life word problems. Show all your working clearly. Total Marks: 30

Word Problems (10 × 3 = 30 Marks)

1. A milk dairy delivers milk packets to 5 housing societies. In one week, Society A received 210 packets, Society B received 175 packets, Society C received 245 packets, Society D received 190 packets, and Society E received 280 packets. If the dairy wants to represent this data as a bar graph using a scale of 1 unit length = 35 packets, find the height (in units) of the bar for each society, and identify which society received the most milk packets.
2. A school library recorded the number of books issued each day for two weeks (14 days): 45, 38, 52, 45, 60, 38, 45, 52, 60, 38, 45, 52, 45, 38. Prepare a frequency table for the data and find on how many days more than 45 books were issued.
3. A mobile recharge shop sold recharge plans worth ₹199, ₹299, ₹399, ₹199, ₹499, ₹299, ₹199, ₹399, ₹199, ₹299, ₹199, ₹499, ₹299, ₹199, ₹399 in a single day. Prepare a frequency table and determine the total sales amount for the day.
4. A pictograph shows the number of trees planted by 4 schools during a 'Green Delhi' drive, using the key  = 25 trees: School P — 6 symbols, School Q — 4.5 symbols, School R — 8 symbols, School S — 3.5 symbols. If the district wants to felicitate the school that planted the most trees per 100 students, and Schools P, Q, R, S have 500, 300, 800, 250 students respectively, which school should be felicitated? (Hint: find trees planted per 100 students for each school.)
5. During a heatwave, a city recorded the maximum temperature (in °C) for 10 consecutive days: 42, 45, 43, 47, 44, 46, 48, 45, 43, 44. A bar graph is to be drawn using a scale of 1 unit length = 1°C, starting the vertical axis from 40°C instead of 0°C to save space. Explain why this could be misleading, and then find the difference between the highest and the lowest temperature recorded.
6. A charity collected donations (in ₹) from 6 neighbourhoods for flood relief: 12,000; 8,500; 15,750; 9,250; 11,000; 14,500. If the total amount is to be distributed equally among 3 relief camps, how much money will each camp receive? Also, find which neighbourhood contributed the most.
7. A cold-drink stall at a summer fair sold the following number of bottles of 4 flavours over a weekend: Mango — 84, Orange — 63, Lemon — 105, Cola — 98. If each bottle

is sold for ₹25 and costs the stall ₹15 to buy, find the total profit earned from the flavour that sold the most.

- 8.** A wildlife census reported the following approximate number of elephants in 5 national parks: Park A — 320, Park B — 275, Park C — 410, Park D — 190, Park E — 365. Prepare a bar graph plan using a scale of 1 unit length = 25 elephants (state the number of units for each park), and find the total elephant population across all 5 parks.
- 9.** A courier company recorded the number of parcels delivered by 4 delivery agents in a month: Agent 1 — 620, Agent 2 — 745, Agent 3 — 580, Agent 4 — 690. The company gives a bonus of ₹5 per parcel to any agent who delivers more than the average number of parcels. Find the average and determine which agents receive the bonus, and the bonus amount for each.
- 10.** A hospital recorded the number of patients visiting the OPD (Out-Patient Department) each day for a week: Monday — 180, Tuesday — 210, Wednesday — 195, Thursday — 225, Friday — 240, Saturday — 260, Sunday — 90. If the hospital wants to represent Sunday's low numbers without misleading readers into thinking OPD closed, suggest why a bar graph starting at 0 is important here, and find the total number of patients for the week.

Answer Key — Word Problems Worksheet — Set 1

1. A: $210 \div 35 = 6$ units; B: $175 \div 35 = 5$ units; C: $245 \div 35 = 7$ units; D: $190 \div 35 = \text{false}$, $190 \div 35 \approx 5.4 \rightarrow$ use nearest, actually $190 \div 35$ is not exact so scale not ideal, but rounded ≈ 5.4 units; E: $280 \div 35 = 8$ units. Society E received the most milk packets (280).
2. $45 \rightarrow 4$, $38 \rightarrow 4$, $52 \rightarrow 3$, $60 \rightarrow 2$, 3 (2 more not matching—recount): 45 appears 4 times, 38 appears 4 times, 52 appears 3 times, 60 appears 2 times (total 13; recount data — total should be 14, so 45 appears 5 times). Correct count: $45 \rightarrow 5$, $38 \rightarrow 4$, $52 \rightarrow 3$, $60 \rightarrow 2$ (total 14). Days with more than 45 books issued = $52(3 \text{ days}) + 60(2 \text{ days}) = 5$ days.
3. $\text{₹}199 \rightarrow 6$ times, $\text{₹}299 \rightarrow 4$ times, $\text{₹}399 \rightarrow 3$ times, $\text{₹}499 \rightarrow 2$ times (total 15). Total sales = $6 \times 199 + 4 \times 299 + 3 \times 399 + 2 \times 499 = 1194 + 1196 + 1197 + 998 = \text{₹}4585$.
4. School P: $6 \times 25 = 150$ trees $\rightarrow$ per 100 students = $150/500 \times 100 = 30$. School Q: $4.5 \times 25 = 112.5 \rightarrow$ per 100 = $112.5/300 \times 100 = 37.5$. School R: $8 \times 25 = 200 \rightarrow$ per 100 = $200/800 \times 100 = 25$. School S: $3.5 \times 25 = 87.5 \rightarrow$ per 100 = $87.5/250 \times 100 = 35$. School Q has the highest trees planted per 100 students (37.5), so School Q should be felicitated.
5. Starting the vertical axis from 40°C instead of 0°C exaggerates the visual differences between bars, making small temperature changes look much larger than they really are — this can mislead readers. Highest = 48°C , Lowest = 42°C , Difference = 6°C .
6. Total donations = $12000 + 8500 + 15750 + 9250 + 11000 + 14500 = \text{₹}71,000$. Each camp receives $71000 \div 3 = \text{₹}23,666.67$ (approx. $\text{₹}23,667$). The neighbourhood contributing the most is the one with $\text{₹}15,750$.
7. Lemon sold the most (105 bottles). Profit per bottle = $25 - 15 = \text{₹}10$. Total profit from Lemon = $105 \times 10 = \text{₹}1,050$.
8. Park A: $320 \div 25 = 12.8$ units; Park B: $275 \div 25 = 11$ units; Park C: $410 \div 25 = 16.4$ units; Park D: $190 \div 25 = 7.6$ units; Park E: $365 \div 25 = 14.6$ units. Total elephants = $320 + 275 + 410 + 190 + 365 = 1,560$.
9. Average = $(620 + 745 + 580 + 690) \div 4 = 2635 \div 4 = 658.75$ parcels. Agents delivering more than 658.75: Agent 2 (745) and Agent 4 (690). Bonus: Agent 2 = $745 \times 5 = \text{₹}3,725$; Agent 4 = $690 \times 5 = \text{₹}3,450$.
10. A bar graph must start from 0 so that the heights of bars are truly proportional to the values — otherwise a low value like Sunday's 90 could look disproportionately small or misleading compared to other days. Total patients for the week = $180 + 210 + 195 + 225 + 240 + 260 + 90 = 1,400$.

Data Handling and Presentation — Word Problems (Difficult)

Word Problems Worksheet — Set 2

Name:	Class: 6	Section:	Date:
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Instructions: These are challenging, real-life word problems. Show all your working clearly. Total Marks: 30

Word Problems (10 × 3 = 30 Marks)

1. A farmer recorded the yield of wheat (in quintals) from 5 fields over a season: Field 1 — 48, Field 2 — 62, Field 3 — 55, Field 4 — 70, Field 5 — 39. If wheat sells at ₹2,150 per quintal, find the total income from all 5 fields, and identify the field that gave the least income.
2. An electricity board recorded the number of units of electricity consumed by 6 households in a month: 210, 340, 180, 275, 400, 150. If the board charges ₹6 per unit for the first 200 units and ₹8 per unit beyond that, calculate the electricity bill for the household that consumed 340 units.
3. A book fair recorded the number of books sold in 5 genres over 3 days: Fiction — 145, Comics — 210, Science — 98, Biography — 76, Poetry — 54. Prepare a bar graph plan using a scale of 1 unit length = 10 books (state the units for each genre, rounding to the nearest whole unit), and find how many more comics were sold than science books.
4. A public transport department tracked the number of passengers using 4 bus routes on a working day: Route 1 — 1,240, Route 2 — 980, Route 3 — 1,560, Route 4 — 875. If each passenger pays an average fare of ₹18, find the total revenue generated from Route 3, and rank all 4 routes from highest to lowest passengers.
5. A weather station recorded the number of sunny, cloudy and rainy days during a 30-day month using a pictograph with the key ☀ = 3 days: Sunny — 6 symbols, Cloudy — 3 symbols, Rainy — 1 symbol. Check whether the total matches 30 days; if not, find the missing number of days and suggest which category it might belong to.
6. A supermarket tracked its sales (in ₹ thousands) over 6 months: January — 85, February — 92, March — 78, April — 105, May — 98, June — 112. Find the month-on-month increase or decrease in sales, and calculate the average monthly sales over the 6 months.
7. A vaccination camp recorded the number of people vaccinated each day for a week: 320, 410, 380, 0, 450, 500, 275 (Thursday was a holiday, hence 0). Explain why including Thursday's value as 0 could distort a bar graph's average, and calculate the average number of people vaccinated per working day (i.e., excluding Thursday).
8. A furniture company recorded the sale of 4 items in a quarter (3 months): Chairs — 480, Tables — 210, Sofas — 95, Beds — 140. Each chair earns a profit of ₹150, each table ₹400, each sofa ₹2,200, and each bed ₹1,800. Find which item category earned the highest total profit for the company.
9. A cricket coach recorded the number of runs scored by a young batter in 8 matches: 34, 0, 112, 45, 8, 67, 23, 91. Find the batter's total runs, average runs per match, and the number of matches in which the batter scored more than the average.
10. An online exam portal recorded the number of students who logged in during 5 time slots of a day: 6 am–9 am — 320, 9 am–12 pm — 890, 12 pm–3 pm — 650, 3 pm–6 pm — 940, 6 pm–9 pm — 1,120. If the portal's server can handle a maximum of 1,000 students at a time safely, during which time slot(s) might the server face problems, and by how much would the number exceed capacity?

Answer Key — Word Problems Worksheet — Set 2

1. Total income = $(48+62+55+70+39) \times 2150 = 274 \times 2150 = ₹5,89,100$. Field 5 (39 quintals) gave the least income = $39 \times 2150 = ₹83,850$.
2. First 200 units: $200 \times 6 = ₹1,200$. Remaining $(340-200=140)$ units: $140 \times 8 = ₹1,120$. Total bill = $₹1,200 + ₹1,120 = ₹2,320$.
3. Fiction: $145 \div 10 \approx 15$ units; Comics: $210 \div 10 = 21$ units; Science: $98 \div 10 \approx 10$ units; Biography: $76 \div 10 \approx 8$ units; Poetry: $54 \div 10 \approx 5$ units. Comics sold $210 - 98 = 112$ more copies than Science.
4. Route 3 revenue = $1560 \times 18 = ₹28,080$. Ranking (highest to lowest): Route 3 (1560) > Route 1 (1240) > Route 2 (980) > Route 4 (875).
5. Sunny = $6 \times 3 = 18$ days; Cloudy = $3 \times 3 = 9$ days; Rainy = $1 \times 3 = 3$ days. Total = $18 + 9 + 3 = 30$ days — this matches the month exactly, so there is no missing category.
6. Change: Feb +7, Mar -14, Apr +27, May -7, Jun +14 (all in ₹ thousands). Average monthly sales = $(85+92+78+105+98+112) \div 6 = 570 \div 6 = ₹95$ thousand (₹95,000).
7. Including Thursday's 0 (a holiday, not a true 'no vaccination' day) would unfairly pull down the average and misrepresent daily vaccination capacity — it should be excluded or clearly marked as a non-working day. Average for working days = $(320+410+380+450+500+275) \div 6 = 2335 \div 6 \approx 389.2$ people per day.
8. Chairs: $480 \times 150 = ₹72,000$; Tables: $210 \times 400 = ₹84,000$; Sofas: $95 \times 2200 = ₹2,09,000$; Beds: $140 \times 1800 = ₹2,52,000$. Beds earned the highest total profit (₹2,52,000).
9. Total runs = $34+0+112+45+8+67+23+91 = 380$. Average = $380 \div 8 = 47.5$ runs per match. Matches with runs above 47.5: 112 and 67 → 2 matches.
10. Time slots exceeding 1,000 capacity: 3 pm–6 pm (940, does not exceed) — recheck: only 6 pm–9 pm (1,120) exceeds 1,000, by $1,120 - 1,000 = 120$ students. So the server may face problems only during 6 pm–9 pm, exceeding capacity by 120 students.

Data Handling and Presentation — Word Problems (Difficult)

Word Problems Worksheet — Set 3

Name:	Class: 6	Section:	Date:
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Instructions: These are challenging, real-life word problems. Show all your working clearly. Total Marks: 30

Word Problems (10 × 3 = 30 Marks)

- A municipal corporation recorded the amount of solid waste collected (in tonnes) from 5 zones of a city in a week: Zone A — 42, Zone B — 58, Zone C — 35, Zone D — 67, Zone E — 49. If each tonne of waste costs ₹850 to process, find the total processing cost for all 5 zones, and determine which zone contributes about one-fourth of the total waste (approximately).
- A school sports day recorded the time (in seconds) taken by 6 students to complete a 100 m race: 14.2, 13.8, 15.1, 13.5, 14.9, 13.8. Arrange the timings in ascending order, find the winner's time, and calculate the difference between the fastest and slowest timings.
- A poultry farm recorded the number of eggs produced each day for a week: 480, 510, 495, 530, 470, 520, 500. If each egg is sold for ₹6.50, find the total revenue for the week, and calculate the average number of eggs produced per day.
- A telecom company recorded the number of new SIM card activations across 4 regions in a month: North — 3,200, South — 4,150, East — 2,780, West — 3,900. If the company aims for a combined target of 15,000 activations, find by how much the actual total falls short of or exceeds the target.
- A water tank supplies water to 5 apartment blocks. The daily water consumption (in litres) recorded was: Block 1 — 8,400, Block 2 — 9,600, Block 3 — 7,200, Block 4 — 10,500, Block 5 — 6,900. If the tank's total capacity is 45,000 litres, check whether it is sufficient for one day's supply to all blocks, and find the shortfall or surplus.
- A toy factory recorded the number of defective toys found in 5 batches during quality checks: Batch 1 — 12 out of 500, Batch 2 — 8 out of 400, Batch 3 — 20 out of 600, Batch 4 — 5 out of 250, Batch 5 — 15 out of 450. Find the percentage of defective toys in each batch, and identify the batch with the highest defect rate.
- A movie theatre recorded ticket sales for 4 shows in a day: Morning — 85, Afternoon — 120, Evening — 210, Night — 165. Each ticket costs ₹180 for morning and afternoon shows, and ₹250 for evening and night shows. Find the theatre's total earnings for the day.
- A road safety survey recorded the number of accidents at 5 traffic junctions over a year: Junction P — 24, Junction Q — 37, Junction R — 15, Junction S — 42, Junction T — 29. The traffic police plan to install a signal at the junction(s) with more than 30 accidents. At how many junctions will signals be installed, and what is the combined number of accidents at those junctions?
- A dairy cooperative recorded milk production (in litres) from 6 villages: Village 1 — 1,250, Village 2 — 980, Village 3 — 1,430, Village 4 — 1,100, Village 5 — 875, Village 6 — 1,320. The cooperative pays ₹42 per litre to farmers. Find the total payment made to Village 3 and Village 5 combined.
- A summer camp recorded the number of children attending 5 activity sessions: Swimming — 65, Painting — 48, Dance — 72, Coding — 55, Yoga — 40. If each session requires 1 instructor for every 15 children, find the number of instructors needed for the Dance session, and find the total number of instructors required for all 5 sessions combined (round up any fraction to the next whole instructor).

Answer Key — Word Problems Worksheet — Set 3

1. Total waste = $42+58+35+67+49 = 251$ tonnes. Total cost = $251 \times 850 = ₹2,13,350$. One-fourth of total $\approx 251/4 \approx 62.75$ tonnes — Zone D (67 tonnes) is closest to contributing about one-fourth of the total waste.
2. Ascending order: 13.5, 13.8, 13.8, 14.2, 14.9, 15.1 seconds. Winner's time = 13.5 seconds. Difference between fastest and slowest = $15.1 - 13.5 = 1.6$ seconds.
3. Total eggs = $480+510+495+530+470+520+500 = 3,505$ eggs. Total revenue = $3505 \times 6.50 = ₹22,782.50$. Average per day = $3505 \div 7 = 500.7 \approx 501$ eggs.
4. Total activations = $3200+4150+2780+3900 = 14,030$. This falls short of the 15,000 target by $15000 - 14030 = 970$ activations.
5. Total consumption = $8400+9600+7200+10500+6900 = 42,600$ litres. Since capacity is 45,000 litres, the tank is sufficient, with a surplus of $45000 - 42600 = 2,400$ litres.
6. Batch 1: $(12/500) \times 100 = 2.4\%$; Batch 2: $(8/400) \times 100 = 2\%$; Batch 3: $(20/600) \times 100 \approx 3.33\%$; Batch 4: $(5/250) \times 100 = 2\%$; Batch 5: $(15/450) \times 100 \approx 3.33\%$. Batch 3 and Batch 5 are tied for the highest defect rate ($\approx 3.33\%$).
7. Morning: $85 \times 180 = ₹15,300$; Afternoon: $120 \times 180 = ₹21,600$; Evening: $210 \times 250 = ₹52,500$; Night: $165 \times 250 = ₹41,250$. Total earnings = $15300 + 21600 + 52500 + 41250 = ₹1,30,650$.
8. Junctions with more than 30 accidents: Junction Q (37) and Junction S (42) — 2 junctions. Combined accidents = $37 + 42 = 79$.
9. Village 3 payment = $1430 \times 42 = ₹60,060$. Village 5 payment = $875 \times 42 = ₹36,750$. Combined = $60060 + 36750 = ₹96,810$.
10. Dance instructors = $72 \div 15 = 4.8 \rightarrow$ round up to 5 instructors. Other sessions: Swimming $65 \div 15 = 4.33 \rightarrow 5$; Painting $48 \div 15 = 3.2 \rightarrow 4$; Coding $55 \div 15 = 3.67 \rightarrow 4$; Yoga $40 \div 15 = 2.67 \rightarrow 3$. Total instructors = $5 + 5 + 4 + 4 + 3 = 21$.