CLASS 10 MATHS NCERT SOLUTIONS

NCERT Solutions for Class 10 Maths Chapter 13 Statistics (2026-27)

Class 10 Maths Chapter 13, Statistics, has three exercises in the current 2023-rationalised, 2026-27 session syllabus — Exercise 13.1 (9 questions, mean of grouped data), Exercise 13.2 (6 questions, mode of grouped data), and Exercise 13.3 (7 questions, median of grouped data) — 22 questions in all. Below are or...

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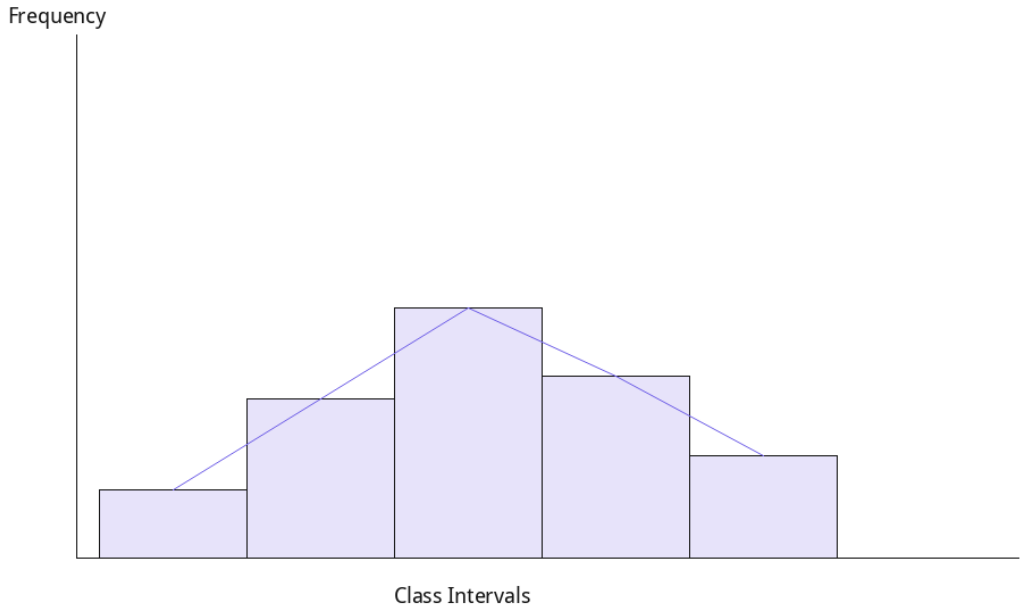

A histogram (bars) with its frequency polygon (joining line) -- used to visualise grouped frequency data.

Reference figure — histogram of grouped data

Why This Chapter Matters for Boards

Statistics is a high-weightage, high-scoring chapter in the CBSE Class 10 Maths board exam, since the mean/median/mode formulas are mechanical once the correct method (direct, assumed-mean, or step-deviation) is chosen. Questions frequently test converting inclusive/discontinuous class intervals to continuous form, finding a missing frequency from a given mean or median, and comparing all three measures for the same data.

Exercise 13.1 Solutions — Mean of Grouped Data

Q1. A survey of 20 houses recorded the number of plants: 0-2(1), 2-4(2), 4-6(1), 6-8(5), 8-10(6), 10-12(2), 12-14(3) houses. Find the mean number of plants per house.
Solution: Direct Method (small values): class marks 1,3,5,7,9,11,13; f□x□ = 1,6,5,35,54,22,39; Σf□ = 20, Σf□x□ = 162. Mean = 162/20 = **8.1 plants**.

Q2. Daily wages of 50 workers: 100-120(12), 120-140(14), 140-160(8), 160-180(6), 180-200(10). Find the mean using a suitable method.
Solution: Step-Deviation, a=150, h=20; u□ = -2,-1,0,1,2; f□u□ = -24,-14,0,6,20; Σf□u□ = -12. Mean = 150 + (-12/50)×20 = 150 − 4.8 = **Rs 145.20**.

Q3. Pocket allowance data: 11-13(7), 13-15(6), 15-17(9), 17-19(13), 19-21(f), 21-23(5), 23-25(4). Mean is Rs 18. Find f.
Solution: Assumed mean a=18 (matches given mean). f□d□ sums to 2f-40. Since mean=a, Σf□d□=0 ⇒ 2f-40=0 ⇒ **f = 20**.

Q4. Heart beats/min of 30 women: 65-68(2), 68-71(4), 71-74(3), 74-77(8), 77-80(7), 80-83(4), 83-86(2). Find the mean.
Solution: Step-Deviation, a=75.5, h=3; Σf□u□ = 4. Mean = 75.5 + (4/30)×3 = **75.9 beats/min**.

Q5. Mangoes per box (inclusive classes): 50-52(15), 53-55(110), 56-58(135), 59-61(115), 62-64(25). Find the mean.
Solution: Convert to continuous classes (49.5-52.5, etc., h=3). Step-Deviation, a=57: Σf□u□ = 25, Σf□ = 400. Mean = 57 + (25/400)×3 = **57.1875 mangoes**.

Q6. Daily food expenditure of 25 households: 100-150(4), 150-200(5), 200-250(12), 250-300(2), 300-350(2). Find the mean.
Solution: Step-Deviation, a=225, h=50: Σf□u□ = -7. Mean = 225 + (-7/25)×50 = 225-14 = **Rs 211**.

Q7. SO_2 concentration (ppm) in 30 localities: 0.00-0.04(4), 0.04-0.08(9), 0.08-0.12(9), 0.12-0.16(2), 0.16-0.20(4), 0.20-0.24(2). Find the mean.
Solution: Step-Deviation, a=0.14, h=0.04: Σf□u□ = -31. Mean = 0.14 + (-31/30)×0.04 = **0.099 ppm (approx.)**.

Q8. Days absent for 40 students (unequal class widths): 0-6(11), 6-10(10), 10-14(7), 14-20(4), 20-28(4), 28-38(3), 38-40(1). Find the mean.
Solution: Assumed-Mean Method (unequal widths, cannot use step-deviation shortcut), a=17: Σf□d□ = -181. Mean = 17 + (-181/40) = **12.48 days (approx.)**.

Q9. Literacy rate (%) of 35 cities: 45-55(3), 55-65(10), 65-75(11), 75-85(8), 85-95(3). Find the mean.
Solution: Step-Deviation, a=70, h=10: Σf□u□ = -2. Mean = 70 + (-2/35)×10 = **69.43% (approx.)**.

Exercise 13.2 Solutions — Mode of Grouped Data

Q1. Ages of patients: 5-15(6), 15-25(11), 25-35(21), 35-45(23), 45-55(14), 55-65(5). Find the mode and mean, and compare.
Solution: Modal class 35-45 (highest f=23): $l=35, f_1=23, f_0=21, f_2=14, h=10$. Mode = 35+[2/11]×10 = **36.8 years**. Mean (assumed mean a=30): Σf□d□=430, Mean=30+430/80=**35.38 years**. Most patients cluster near 36.8 (mode), average is slightly higher at 35.38.

Q2. Lifetimes (h) of 225 components: 0-20(10),20-40(35),40-60(52),60-80(61),80-100(38),100-120(29). Find the modal lifetime.
Solution: Modal class 60-80 (f=61): $l=60, f_1=61, f_0=52, f_2=38, h=20$. Mode=60+[9/32]×20=**65.625 hours**.

Q3. Monthly expenditure of 200 families across 8 classes (1000-5000, step 500): 24,40,33,28,30,22,16,7. Find modal and mean expenditure.
Solution: Modal class 1500-2000 (f=40): $l=1500, f_1=40, f_0=24, f_2=33, h=500$. Mode=1500+[16/23]×500=**Rs 1847.83 (approx.)**. Mean (step-deviation a=2750): Σf□u□=-35, Mean=2750+(-35/200)×500=**Rs 2662.50**.

Q4. Students-per-teacher ratio across states:
15-20(3),20-25(8),25-30(9),30-35(10),35-40(3),40-45(0),45-50(0),50-55(2). Find mode and mean; interpret.
Solution: Modal class 30-35 (f=10): Mode=30+[1/8]×5=**30.6 (approx.)**. Mean (step-deviation a=32.5): Σf□u□=-23, Mean=32.5+(-23/35)×5=**29.2 (approx.)**. Most states cluster near 30.6; nationwide average is slightly lower.

Q5. ODI runs of top batsmen (8 classes, 3000-11000, step 1000): 4,18,9,7,6,3,1,1. Find the mode.
Solution: Modal class 4000-5000 (f=18): l=4000,f_1=18,f_0=4,f_2=9,h=1000.
Mode=4000+[14/23]×1000=**4608.7 runs (approx.)**.

Q6. Cars passing in 100 periods of 3 min (8 classes, 0-80, step 10): 7,14,13,12,20,11,15,8. Find the mode.
Solution: Modal class 40-50 (f=20): l=40,f_1=20,f_0=12,f_2=11,h=10. Mode=40+[8/17]×10=**44.7 cars (approx.)**.

Exercise 13.3 Solutions — Median of Grouped Data

Q1. Monthly electricity units for 68 consumers:
65-85(4),85-105(5),105-125(13),125-145(20),145-165(14),165-185(8),185-205(4). Find median, mean, mode; compare.
Solution: n=68,n/2=34; cf: 4,9,22,42,56,64,68 ⇒ median class 125-145.
Median=125+[(34-22)/20]×20=**137**. Mode (modal class 125-145,f=20): Mode=125+[7/13]×20=**135.77 (approx.)**. Mean (step-dev a=135): Mean=135+(7/68)×20=**137.06 (approx.)**. All three are close, showing a fairly symmetric distribution.

Q2. Median of the distribution 0-10(5),10-20(x),20-30(20),30-40(15),40-50(y),50-60(5), total 60, is 28.5. Find x and y.
Solution: 5+x+20+15+y+5=60 ⇒ x+y=15. Median class 20-30 (l=20,cf=5+x,f=20,h=10):
28.5=20+[(30-5-x)/20]×10 ⇒ x=8. So **x=8, y=7**.

Q3. Ages of 100 policy holders given as “below” cumulative data (below 20 to below 60, step 5): 2,6,24,45,78,89,92,98,100. Find the median age.
Solution: Convert to class frequencies: 2,4,18,21,33,11,3,6,2 (cf same as given). n=100,n/2=50; median class 35-40 (cf just >50 is 78). l=35,cf=45,f=33,h=5. Median=35+[(50-45)/33]×5=**35.76 years (approx.)**.

Q4. Leaf lengths (mm) of 40 leaves, inclusive classes 118-126 to 172-180: 3,5,9,12,5,4,2. Find the median length.
Solution: Convert to continuous classes (117.5-126.5, h=9). n=40,n/2=20; cf:3,8,17,29,34,38,40 ⇒ median class 144.5-153.5. l=144.5,cf=17,f=12,h=9. Median=144.5+[(20-17)/12]×9=**146.75 mm**.

Q5. Lifetime (h) of 400 neon lamps: 1500-2000(14),2000-2500(56),2500-3000(60),3000-3500(86),3500-4000(74),4000-4500(62),4500-5000(48). Find the median lifetime.
Solution: cf: 14,70,130,216,290,352,400. n=400,n/2=200; median class 3000-3500 (first cf>200 is 216). l=3000,cf=130,f=86,h=500. Median=3000+[(200-130)/86]×500=**3406.98 hours (approx.)**.

Q6. Letters in 100 surnames: 1-4(6),4-7(30),7-10(40),10-13(16),13-16(4),16-19(4). Find median, mean, modal number of letters.
Solution: n=100,n/2=50; cf:6,36,76,92,96,100 ⇒ median class 7-10. Median=7+[(50-36)/40]×3=**8.05**.
Mean (step-dev a=11.5): Σf□u□=-106, Mean=11.5+(-106/100)×3=**8.32**. Mode (modal class 7-10,f=40):
Mode=7+[10/34]×3=**7.88**.

Q7. Weights (kg) of 30 students: 40-45(2),45-50(3),50-55(8),55-60(6),60-65(6),65-70(3),70-75(2). Find the median weight.
Solution: cf:2,5,13,19,25,28,30. n=30,n/2=15; median class 55-60 (cf just>15 is 19). l=55,cf=13,f=6,h=5.
Median=55+[(15-13)/6]×5=**56.67 kg (approx.)**.

CBSE Exam Weightage

This chapter falls under **Unit VII: Statistics and Probability** in the CBSE Class 10 Maths board exam syllabus. This unit typically carries around **11 marks (13.75%)** of the 80-mark theory paper, based on CBSE's published unit-wise weightage (Question Paper Design). CBSE sets weightage at the unit level rather than chapter-by-chapter, so the exact share from this specific chapter can vary a little between years and sample papers.

Class 10 Mathematics Chapter 13 – Notes and Extra Questions

Along with these NCERT Solutions, students can also use the Class 10 Mathematics Chapter 13 Extra Questions and Class 10 Mathematics Chapter 13 Revision Notes for quick revision and extra practice.