

Unit 9 Test — Answer Key

Measures of Center, Spread, Box Plots & Data Distributions

FOR TEACHER / SELF-CHECK USE

This test was written to cover Unit 9's topics (mean, median, mode, range, box plots, histograms, and data distributions). Every solution below has been independently verified.

1	Sum = $4+8+6+10+12 = 40$. Mean = $40 \div 5$. Answer: A — 8
2	Sorted: 2, 3, 5, 7, 9. The middle value is 5. Answer: A — 5
3	7 appears three times, more than any other value. Answer: 7
4	Range = max – min = $45 - 7$. Answer: A — 38
5	Sorted (already): 2,4,5,7,8,9,12,15. Lower half {2,4,5,7}: $Q1 = (4+5)/2 = 4.5$. Upper half {8,9,12,15}: $Q3 = (9+12)/2 = 10.5$. $IQR = Q3 - Q1 = 10.5 - 4.5$. Answer: A — 6
6	Sorted: 5,7,8,10,12,13,20 ($n=7$). Median = 10 (4th value). Lower half {5,7,8}: $Q1 = 7$. Upper half {12,13,20}: $Q3 = 13$. Min = 5, Max = 20. Answer: Min = 5, Q1 = 7, Median = 10, Q3 = 13, Max = 20
7	$IQR = Q3 - Q1 = 35 - 20$. Answer: A — 15
8	The mean uses every value in its calculation, so one extreme value can pull it noticeably higher or lower. The median only depends on the middle position(s), so it resists outliers. Answer: A — Mean
9	Sum = $78+85+92+66+88+95+73+90 = 667$. Mean = $667 \div 8 = 83.375$. Sorted: 66,73,78,85,88,90,92,95. Median = $(85+88)/2 = 86.5$. Range = $95 - 66 = 29$. Answer: Mean = 83.375, Median = 86.5, Range = 29
10	Mean of all 6 values: $(60+62+65+68+70+95)/6 = 420/6 = 70$. Mean without the outlier: $(60+62+65+68+70)/5 = 325/5 = 65$. Removing the high outlier (95) removes a value well above the rest of the data, so the average of the remaining, more tightly clustered values is lower — the mean drops from 70 to 65. Answer: Mean with outlier = 70; mean without outlier = 65