

Can the mean lose, win, and tie?

Three predictions. Five readings each. One stated target per case.

NAME _____ DATE _____

- 1 Predict. 2 Mean = $\text{sum} \div 5$. 3 Median = middle sorted reading.
4 Absolute error = distance from target. Circle the smaller error, or a tie.

CASE A

TARGET 50

48

49

50

51

85

PREDICT BEFORE CALCULATING

☐ Mean

☐ Median

☐ Equal error

Mean _____ Error _____ Median _____ Error _____

Smaller error belongs to: _____

CASE B

TARGET 52

40

42

50

60

68

PREDICT BEFORE CALCULATING

☐ Mean

☐ Median

☐ Equal error

Mean _____ Error _____ Median _____ Error _____

Smaller error belongs to: _____

CASE C

TARGET 50

0

0

50

100

100

PREDICT BEFORE CALCULATING

☐ Mean

☐ Median

☐ Equal error

Mean _____ Error _____ Median _____ Error _____

Smaller error belongs to: _____

EXPLAIN

What do these cases show about claiming one estimator always wins?



SCAN TO CHECK

Worked answer key

The same two estimators can produce three different outcomes.

CASE	MEAN / ERROR	MEDIAN / ERROR	CLOSER
A	$283 \div 5 = 56.6$ Absolute error: 6.6	50 Absolute error: 0	Median
B	$260 \div 5 = 52$ Absolute error: 0	50 Absolute error: 2	Mean
C	$250 \div 5 = 50$ Absolute error: 0	50 Absolute error: 0	Equal

THE IDEA TO TAKE AWAY

The winner depends on the readings AND the stated target.

Case A: a high reading pulls the mean away from 50.

Case B: the mean lands exactly on the supplied target of 52.

Case C: both estimates and both errors are equal.

FACILITATOR PROMPTS

1. Ask for a prediction before anyone calculates.
2. Have students show both absolute errors, not just the estimates.
3. Change only the target. Can the closer estimate change?

These are invented readings and chosen targets, not measured ground truth.

An unusual observation is not automatically wrong.

TAKE IT ONLINE

Scan for blind checks of A, B, and C, then change the values in the interactive lab.



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