



Side lengths from coordinates

Measuring without a ruler

- Today: find how long a side is using only its endpoints.

How long is the side from $(-4, 2)$ to $(3, 2)$?

- Work it out silently.

Turn & talk: is it 1 or 7?

Which coordinates do you subtract?

- Same $y \rightarrow$ the side is HORIZONTAL $\rightarrow$ subtract the x -values.
- Same $x \rightarrow$ the side is VERTICAL $\rightarrow$ subtract the y -values.

The matching pair tells you which pair to leave alone.

$$\underline{3 - (-4) = 3 + 4 = 7}$$

- The side crosses zero: 4 units to reach 0, then 3 more.

Crossing zero? The two distances ADD.

But not always

- $(-6, 5)$ to $(-1, 5)$: both are left of zero.
- $-1 - (-6) = 5$ units — the gap, not the sum.

Same side of zero: subtract. Crossing zero: add.

Your turn

- Length from $(2, -6)$ to $(2, 5)$?
- Thumbs up when you have it.

From sides to perimeter and area

- Perimeter: add all four sides $\rightarrow$ units.
- Area: multiply length by width $\rightarrow$ square units.

Distance is never negative. Drop the sign, keep the size.

Now you

- → In-class practice sheet