Polygons on the Coordinate Plane

Polygons on the coordinate plane: Models and calculations

Name _____ **Date** _____ **Score** _____ / 6

QUICK REVIEW

Plot vertices in their named order and close the polygon. For horizontal sides, subtract the smaller x from the larger x. For vertical sides, use the y values. For example, $(-3, 1)$ to $(2, 1)$ is $2 - (-3) = 5$ units. Add every boundary side for perimeter.

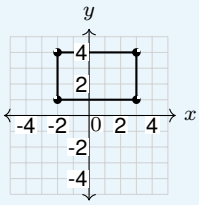
Worked example

Plot and connect the rectangle, then find perimeter. A$(-2, 1)$, B$(3, 1)$, C$(3, 4)$, D$(-2, 4)$.

1. Horizontal side $= |3 - (-2)| = 5$; vertical side $= |4 - (1)| = 3$.

2. Opposite sides match, so perimeter $= 5 + 3 + 5 + 3 = 16$ units.

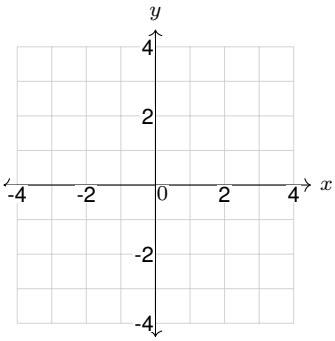
Answer: ABCD is a rectangle; side lengths $5, 3$; perimeter 16 units.



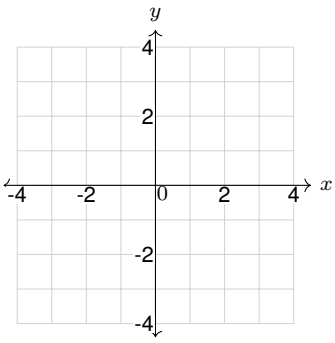
Practice Problems

Show your thinking.

1. Plot ABCD in order; identify the polygon and find perimeter. A$(-3, -2)$, B$(2, -2)$, C$(2, 1)$, D$(-3, 1)$.

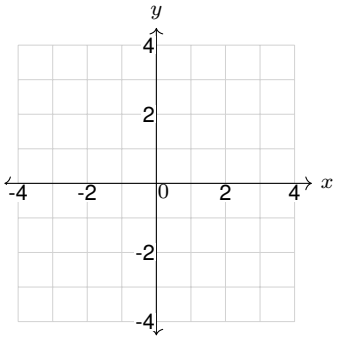


2. Find the boundary of a six-sided L-shape. Plot and connect $(-3, -2)$, $(2, -2)$, $(2, 0)$, $(0, 0)$, $(0, 3)$, $(-3, 3)$ in order, closing the polygon. Find its perimeter.

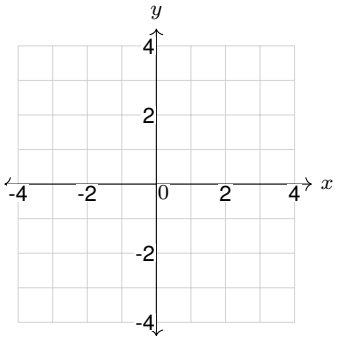


3. For A$(0, -3)$, B$(3, -3)$, C$(3, 2)$ and D$(0, 2)$, name both vertical sides and find their lengths.

4. A park has a triangular boundary. Plot and connect A$(-3, -1)$, B$(3, -1)$, C$(3, 2)$. Identify the perpendicular sides and their lengths; do not find the diagonal length.



5. Find the missing fourth vertex D, plot the rectangle, and find perimeter. A$(-1, -2)$, B$(3, -2)$, C$(3, 3)$.



6. A student omits D from the route A$(-3, -3)$, B$(1, -3)$, C$(1, 1)$, D$(-3, 1)$. Why does connecting only A, B and C not give the original boundary?

Answer Key

1. ABCD is a rectangle; side lengths $5, 3$; perimeter 16 units.
2. Perimeter 20 units.
3. BC and DA are vertical, each 5 units.
4. AB and BC are perpendicular; AB 6 units, BC 3 units.
5. D$(-1, 3)$; perimeter 18 units.
6. It gives a triangle instead of the four-sided square.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Horizontal side $= |2 - (-3)| = 5$; vertical side $= |1 - (-2)| = 3$.

2. Opposite sides match, so perimeter $= 5 + 3 + 5 + 3 = 16$ units.

Problem 2

1. The first horizontal/vertical lengths are $|2 - (-3)| = 5$ and $|0 - (-2)| = 2$.

2. In boundary order, side lengths are $5, 2, 2, 3, 3, 5$; total $= 5 + 2 + 2 + 3 + 3 + 5 = 20$ units.

Problem 3

1. B and C share $x = 3$; D and A share $x = 0$. A constant x makes a vertical side.

2. Both sides go from $y = -3$ to $y = 2$, so their lengths are $2 - (-3) = 5$ units.

Problem 4

1. A and B share $y = -1$, so AB is horizontal with length $|3 - (-3)| = 6$.

2. B and C share $x = 3$, so BC is vertical with length $|2 - (-1)| = 3$.

3. A horizontal line and a vertical line meet at a 90° angle, so the triangle has a right angle at B.

Problem 5

1. D shares A's horizontal coordinate -1 and C's vertical coordinate 3, so D$(-1, 3)$.

2. Width $= 3 - (-1) = 4$, height $= 3 - (-2) = 5$.

3. Perimeter $= 2(4 + 5) = 18$ units.

Problem 6

1. AB and BC each measure $1 - (-3) = 4$ units.

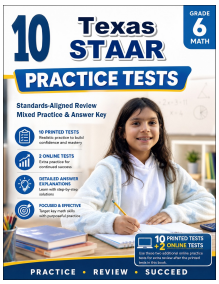
2. The square has 4 sides, closing via CD and DA. Connecting C directly to A uses a diagonal instead and leaves only 3 sides.

TESTINAR

Keep Building Grade 6 Math Skills

Choose the practice book matched to your state assessment and turn worksheet practice into a complete test-prep plan.

All Grade 6 books



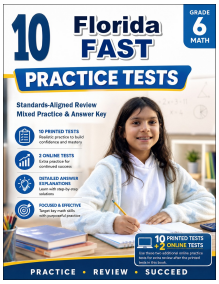
TEXAS STAAR

10 Full-Length Math Practice Tests

Build Grade 6 accuracy, confidence, and test stamina with 10 printable practice tests.

Printable eBook • Instant PDF access

View eBook



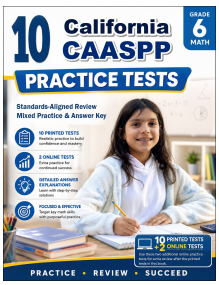
FLORIDA FAST

10 Full-Length Math Practice Tests

Build Grade 6 accuracy, confidence, and test stamina with 10 printable practice tests.

Printable eBook • Instant PDF access

View eBook



CALIFORNIA CAASPP

10 Full-Length Math Practice Tests

Build Grade 6 accuracy, confidence, and test stamina with 10 printable practice tests.

Printable eBook • Instant PDF access

View eBook

Need a different state?
Testinar has Grade 6 math practice books for state assessments across the country.

TESTINAR.COM/GRADES/6