Lesson 2.6

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Lesson 2-6: Represent Polygons on the Coordinate Plane

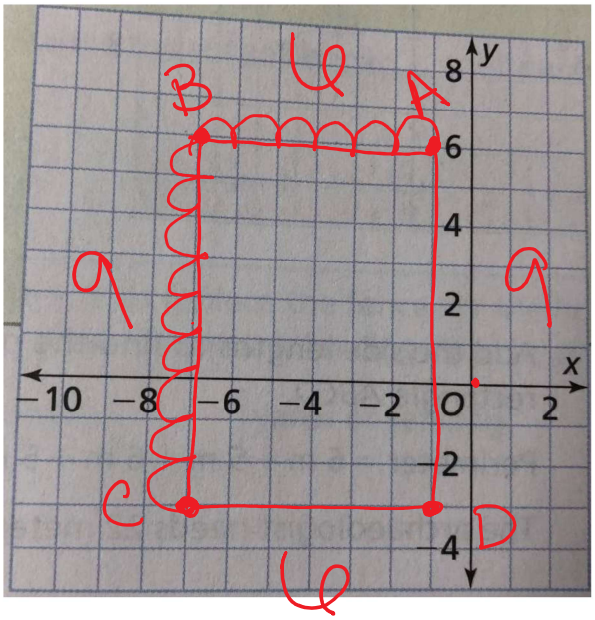
I can…find side lengths of polygons on a coordinate plane.

Solve & Discuss it!

Draw a polygon with vertices at A(-1, 6), B(-7, 6), C(-7, -3), and D(-1, -3). Then find the perimeter of the polygon.

add all the sides

(x, y)



6+6+9+9

30 units

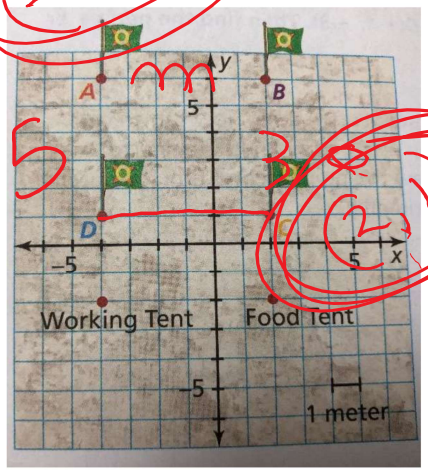
What type of polygon did you draw? Use a definition to justify your answer.

Rectangle

4 sides
2 sets of parallel lines
4 right angles

Example 1: Find the Perimeter of a Rectangle

An archaeologist used a coordinate plane to map a dig site. She marked the corners of a building with flags, as shown. How much rope does she need to go around the building?



Perimeter

$6+6+5+5$

22m

Try it!

The archaeologist later decides to extend the roped-off area so that the new perimeter goes from A to B to the food tent to the working tent and then back to A. How much rope does she need now?

$6+6+8+8$

28m

Convince me!

How could you use the formula for the perimeter of a rectangle to find the perimeter of the larger rectangle using two of the distances?

$l+l+w+w$

$2l+2w=P$

Example 2: Find the Perimeter of an Irregular Polygon

A rancher maps the coordinates for a holding pen for his cows. How much fencing does the rancher need to enclose the cows' holding pen?

LM $|-16.25|-|-4.5| = 11.75$

MN $|4|+|-6| = 10$

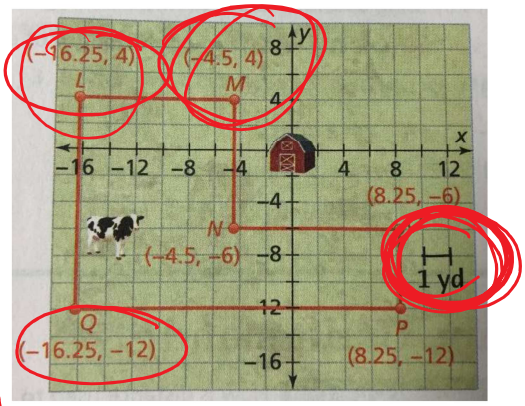
NO $|-4.5|+|8.25| = 12.75$

OP $|-12|-|-6| = 6$

PQ $|-16.25|+|8.25| = 24.5$

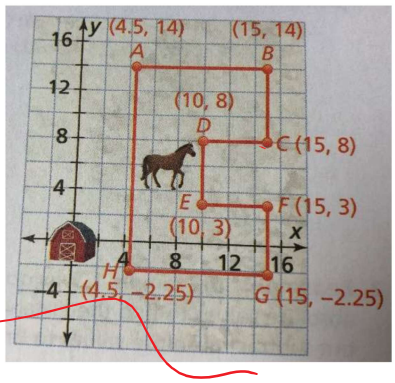
QL $|-12|+|4| = 16$

$+$ 81 yds



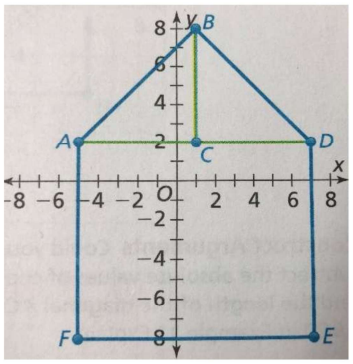
Try it!

The rancher needs to replace the fence for the holding pen for the horses. How much fencing does he need?



Example 3: Apply Distance to Geometry

Are triangles ABC and BCD isosceles? Explain.



Try it!

Joaquin says that quadrilateral ADEF is a square. Is he correct? Explain.

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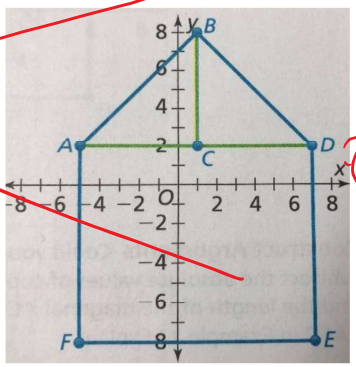

Do you understand?

1.) How is distance used to solve problems about polygons in a coordinate plane?

- count
- vertical / hor. distances
- use Absolute value. (Perimeter)

2.) Could you add or subtract the absolute values of coordinates to find the length of the diagonal AC of rectangle ABCD in Example 1? Explain.

No

Rate your understanding. 1-Do not understand….4-can teach someone else

Learning Target: Draw polygons in the coordinate plane and find the distances between points in the coordinate plane.	1	2	3	4
I can draw polygons in the coordinate plane.	1	2	3	4
I can find horizontal and vertical sides lengths of polygons in the coordinate plane.	1	2	3	4