

Polygons in the Coordinate Plane

4.4

Essential Question: How can you find the lengths of line segments in a coordinate plane?

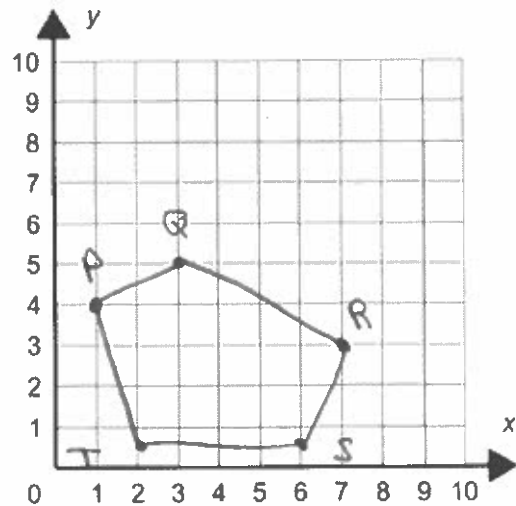
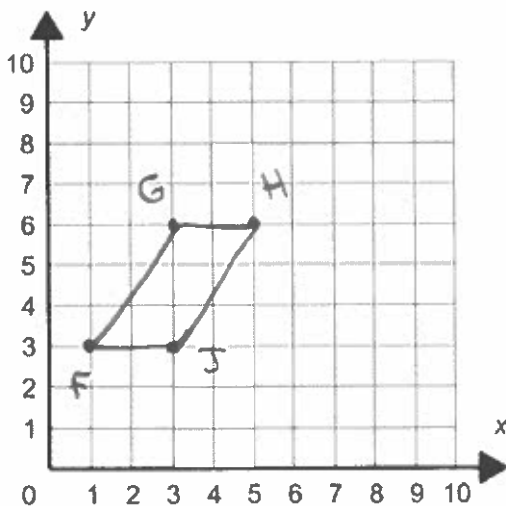
Common Core State Standard: 6.G.3 Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.

EXAMPLE 1 Drawing a Polygon in a Coordinate Plane

Draw the polygon with the given vertices in a coordinate plane.

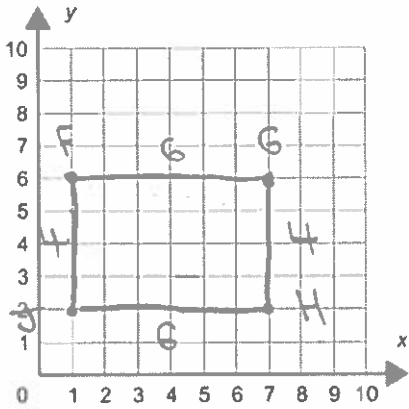
1. $F(1, 3)$ $G(3, 6)$ $H(5, 6)$ $J(3, 3)$

2. $P(1, 4)$ $Q(3, 5)$ $R(7, 3)$ $S(6, \frac{1}{2})$ $T(2, \frac{1}{2})$



EXAMPLE 2 Finding a Perimeter

The vertices of a rectangle are $F(1, 6)$, $G(7, 6)$, $H(7, 2)$, and $J(1, 2)$. Draw the rectangle in a coordinate plane and find its perimeter and area.



$$P = 4 + 6 + 4 + 6$$

$$P = 20 \text{ units}$$


$$A = 4 \cdot 6$$

$$A = 24 \text{ units}^2$$

EXAMPLE 3 Real-Life Application

The area of the giraffe exhibit is 4800 ft^2 .

In a grid of the exhibits at a zoo, the vertices of the giraffe exhibit are $E(0, 90)$, $F(60, 90)$, $G(100, 30)$, and $H(0, 30)$. The coordinates are measured in feet. What is the area of the giraffe exhibit?



$$A = \frac{60(60+100)}{2}$$

$$A = \frac{60(160)}{2}$$

$$A = \frac{9600}{2}$$

$$A = 4800$$

