

4.4 Area of Polygons in a Coordinate Plane Notes

Perimeter: add up all sides (distance around)

Area Formulas:

Rectangle: $A = bh$	Parallelogram: $A = bh$
Triangle: $A = bh \div 2$	Trapezoid: $A = \frac{1}{2} \cdot h \cdot (b_1 + b_2)$

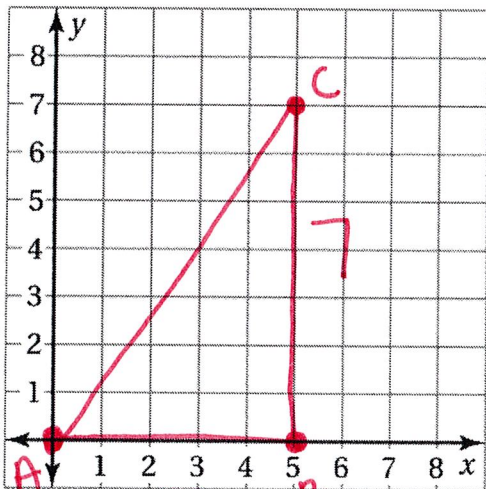
You can use ordered pairs to represent vertices of polygons. An ordered pair is represented by (x, y) .

The first number x tells you how many spaces to move to the right →

The second number y tells you how many spaces to move up ↑

Draw the polygon with the given vertices in a coordinate plane. Then find the area and perimeter as indicated. Be sure to show your formula, substitution, & answer with label

$A(0,0), B(5,0), C(5,7)$

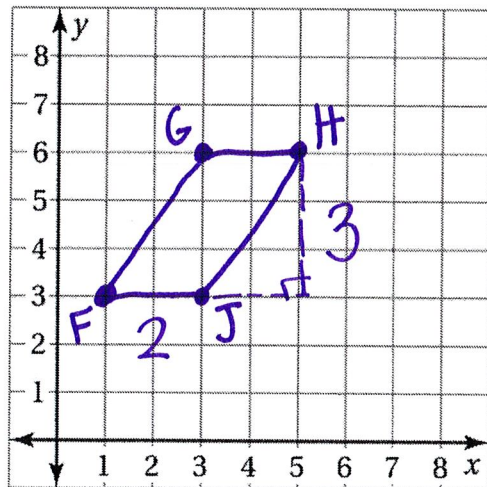


Area:

5 7

Triangle
 $A = bh \div 2$
 $A = 5 \cdot 7 \div 2$
 $A = 17.5 \text{ units}^2$

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



Area:

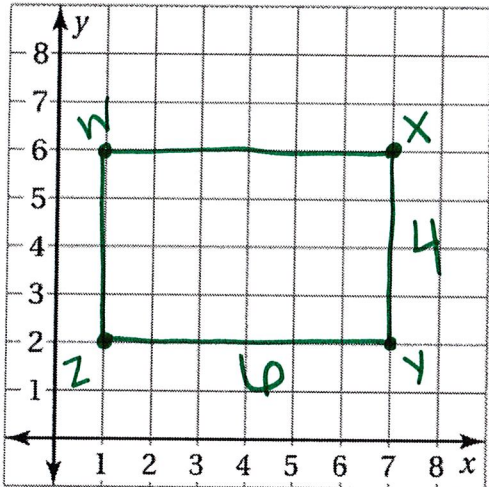
parallelogram

$A = bh$

$A = 2 \cdot 3$

$A = 6 \text{ units}^2$

W(1,6), X(7,6), Y(7,2), Z(1,2)



Area:

Rectangle

$$A = bh$$

$$A = 6 \cdot 4$$

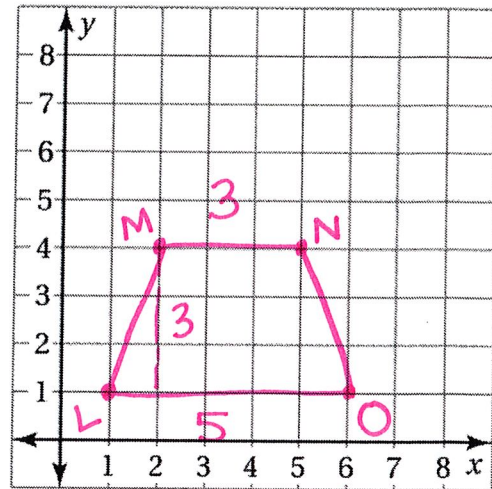
$$A = 24 \text{ units}^2$$

Perimeter:

$$6 + 4 + 6 + 4$$

$$20 \text{ units}$$

L(1,1), M(2,4), N(5,4), O(6,1)



Area: Trapezoid

$$A = \frac{1}{2} \cdot h \cdot (b_1 + b_2)$$

$$A = 0.5 \cdot 3 \cdot (5 + 3)$$

$$A = 0.5 \cdot 3 \cdot 8$$

$$A = 12 \text{ units}^2$$

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?

Trapezoid

$$A = \frac{1}{2} \cdot h \cdot (b_1 + b_2)$$

$$A = 0.5 \cdot 60 \cdot (60 + 100)$$

$$A = 0.5 \cdot 60 \cdot 160$$

$$A = 4800 \text{ ft}^2$$

