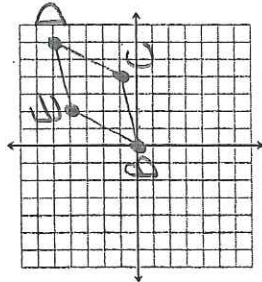


# Quadrilaterals on the Coordinate Plane

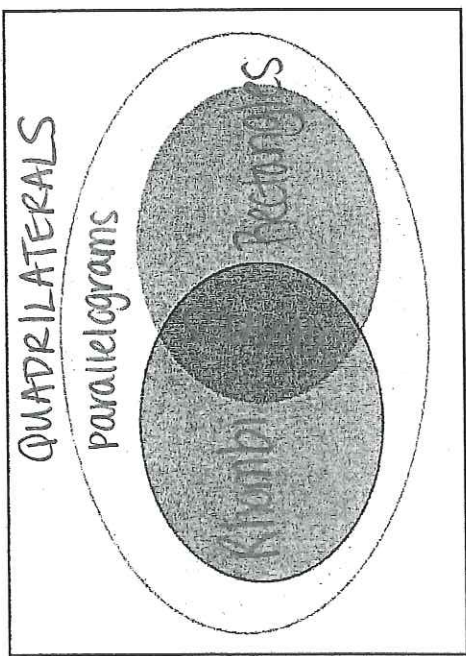
- Determine whether the figure with the given vertices is a parallelogram.

- o B(0,0), C(4, 1), D(6, 5), E (2,4)

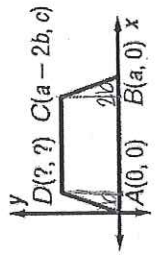


BC slope =  $\frac{1}{4}$   $\parallel$   
 ED slope =  $\frac{1}{4}$   
 BE slope =  $\frac{4}{2} = 2$   $\parallel$   
 CD slope =  $\frac{4}{2} = 2$

YES b/c 2 sets of  $\parallel$  lines

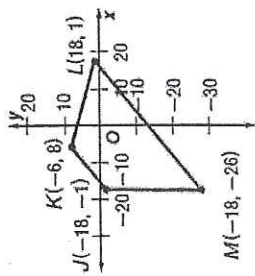


- Name the missing coordinates for the isosceles trapezoid.



(2b, c)

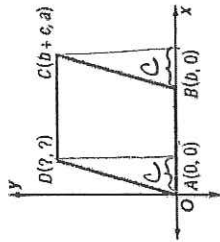
- Verify that JKLM is a trapezoid.



Slope JK =  $\frac{8-1}{-6+18} = \frac{7}{12} = \frac{3}{4}$   
 Slope LM =  $\frac{1-26}{18-18} = \frac{27}{0} = \frac{3}{4}$

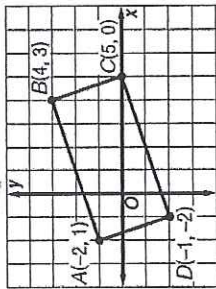
Trapezoid b/c exactly one set of  $\parallel$  lines.

- Name the missing coordinate for the parallelogram.



(c, a)

- Determine whether ABCD is a rectangle.



$$\text{Slope } AB = \frac{3-1}{4-2} = \frac{2}{2} = 1$$

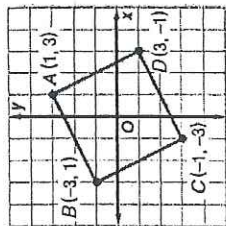
$$\text{Slope } DC = \frac{0-2}{6-1} = \frac{-2}{5} = -\frac{2}{5}$$

$$\text{Slope } AD = \frac{1-2}{-2-1} = \frac{-1}{-3} = \frac{1}{3}$$

$$\text{Slope } BC = \frac{3-0}{4-6} = \frac{3}{-2} = -\frac{3}{2}$$

YES, b/c opp sides  
are // & adj sides  
are  $\perp$  (form  $90^\circ$   $\angle$ s)

- Determine whether ABCD is a rhombus, a rectangle or a square. List all that apply.



$$AB = \sqrt{(1-3)^2 + (3-1)^2} = \sqrt{10 + 4} = \sqrt{20}$$

$$AD = \sqrt{(3-1)^2 + (1-3)^2} = \sqrt{10 + 4} = \sqrt{20}$$

$$DC = \sqrt{(3-1)^2 + (-1-3)^2} = \sqrt{10 + 16} = \sqrt{26}$$

$$BC = \sqrt{(-3+1)^2 + (1+3)^2} = \sqrt{4 + 16} = \sqrt{20}$$

$$\text{Slope } AB = \frac{3-1}{1-3} = \frac{2}{-2} = -1$$

$$\text{Slope } AD = \frac{3-1}{1-3} = \frac{2}{-2} = -1$$

opp rec so  $\perp$

rhombus, rectangle & square