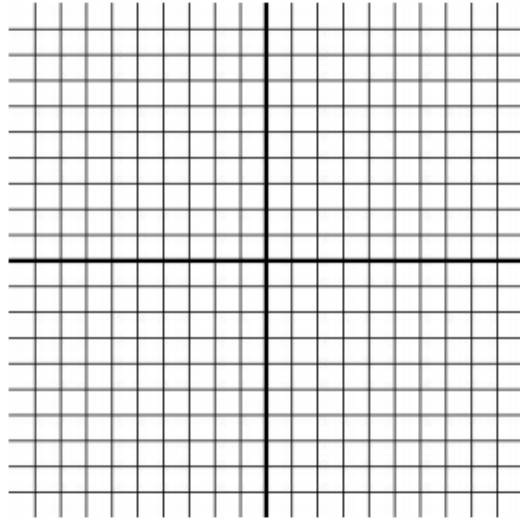


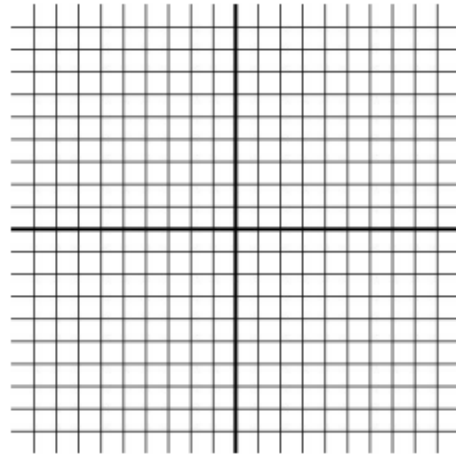
Consider the line segments  $\overline{AB}$  and  $\overline{CD}$ , with A(-3,-2), B(2,1), C(-7,-1), and D(-2,2).

a. **Prove** that  $\overline{AB} \parallel \overline{CD}$ .

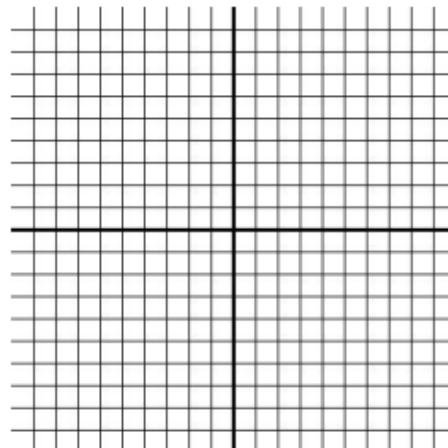


b. Determine if  $\overline{BC} \parallel \overline{AB}$ .

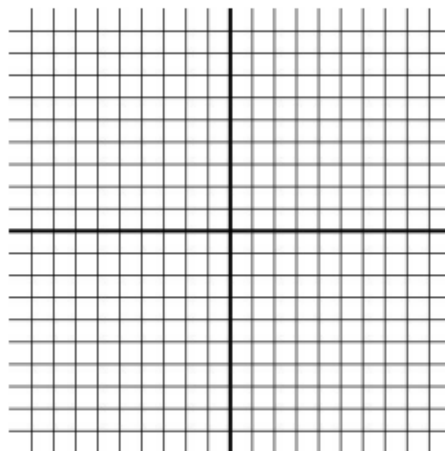
Determine the coordinates of the intersection of the diagonals of parallelogram  $FGHI$  with vertices  $F(-2, 4)$ ,  $G(3, 5)$ ,  $H(2, -3)$ , and  $J(-3, -4)$ . Prove  $FGHI$  is a parallelogram.



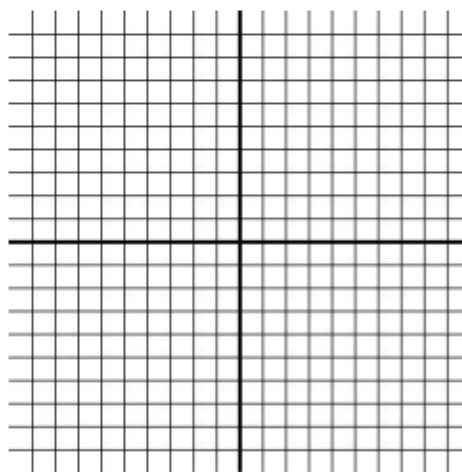
Graph quadrilateral  $KLMN$  with vertices  $K(2, 3)$ ,  $L(8, 4)$ ,  $M(7, -2)$ , and  $N(1, -3)$ . Prove the quadrilateral is a parallelogram. Justify your answer using the Slope Formula *and* Distance formula.



Quadrilateral  $PQRS$  has vertices  $P(-5, 3)$ ,  $Q(1, -1)$ ,  $R(-1, -4)$ , and  $S(-7, 0)$ . Prove  $PQRS$  is a rectangle.

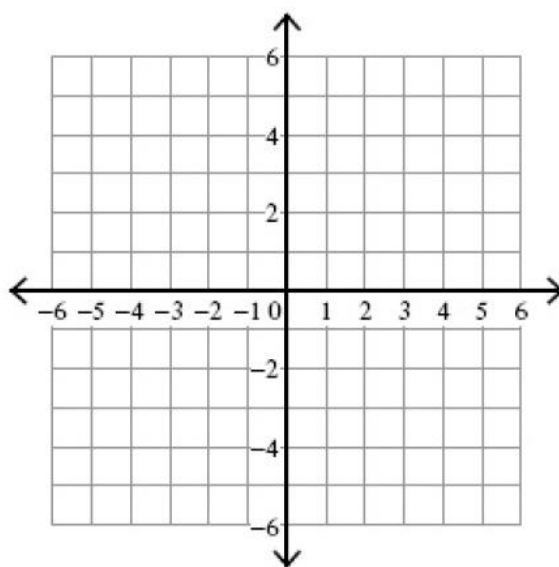


$F(-2, 4)$ ,  $G(3, 5)$ ,  $H(2, -3)$ ,  $J(-3, -4)$ . Prove that quadrilateral  $FGHJ$  is a parallelogram.

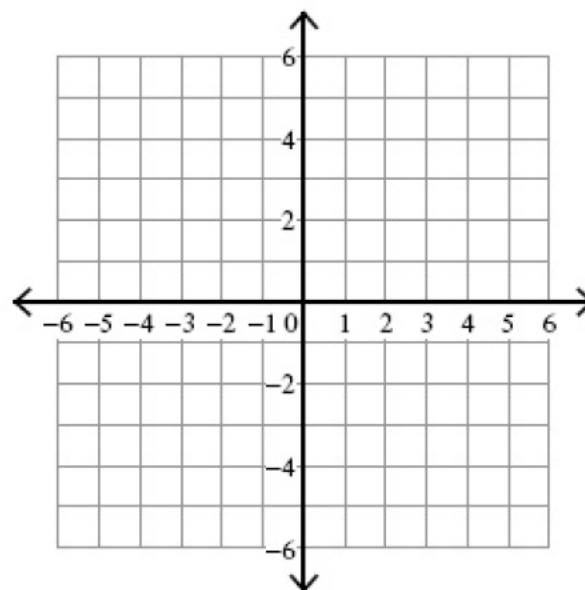


In Exercises 6 and 7, three vertices of parallelogram  $ABCD$  are given. Find the remaining vertex.

6.  $A(-2, 0)$ ,  $B(-2, -2)$ ,  $D(2, 2)$

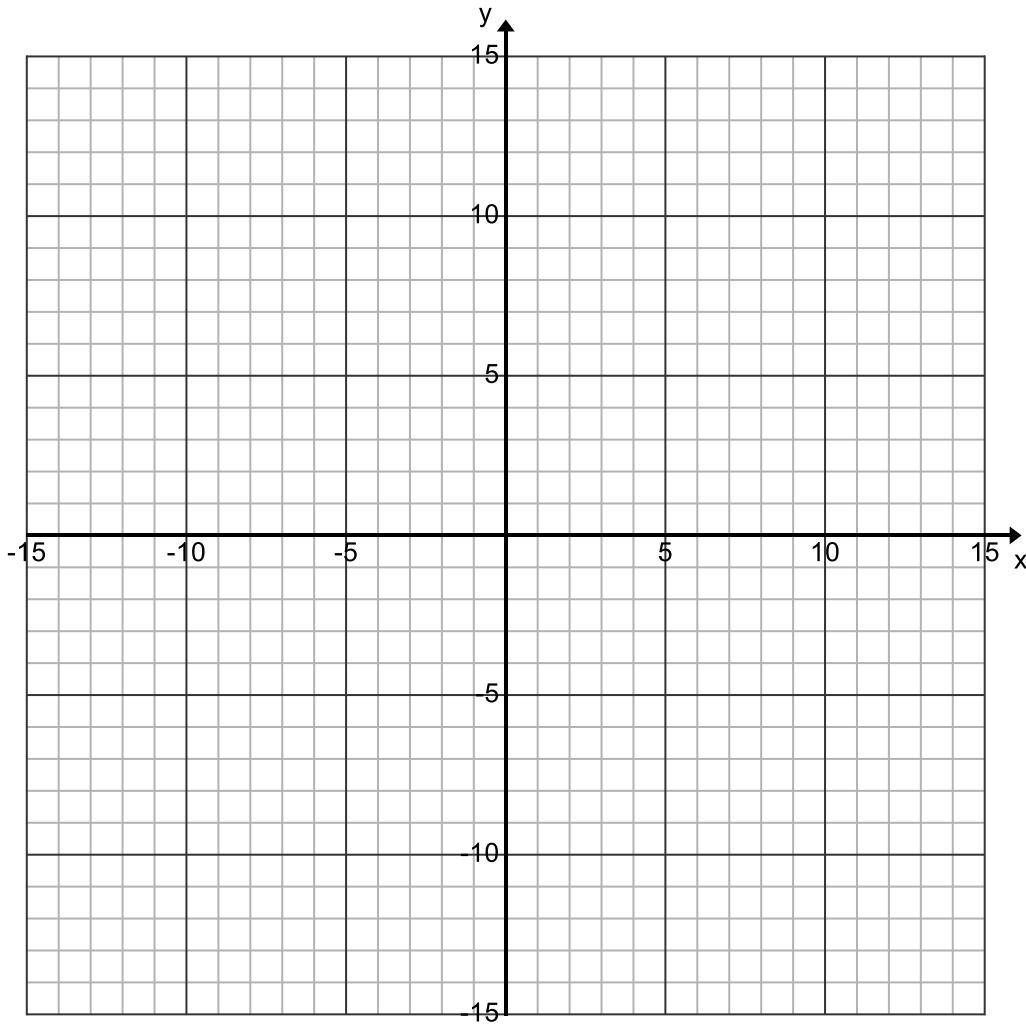


7.  $A(-1, -3)$ ,  $C(1, 2)$ ,  $D(-1, -2)$



You are told three of the four coordinates in a parallelogram, find the fourth coordinate

$(0, 0)$   $(3, 4)$   $(6, -1)$  Confirm location of fourth point using slope midpoint and distance formulas



Why does this problem have more answers than the previous two?