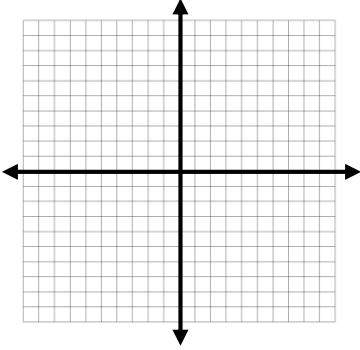


7.1 Properties of Quadrilaterals and Parallelograms

Determine whether the quadrilaterals below are parallelograms. Use Slope Formula to verify.

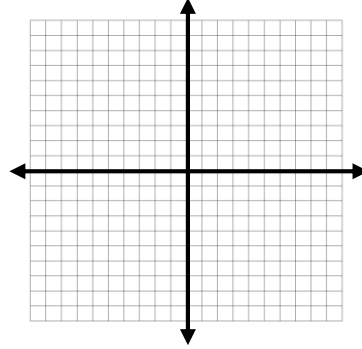
1. Quadrilateral ABCD

A(1,-6), B(-1,-3), C(-2, 7), D(0, 4)



2. Quadrilateral EFGH

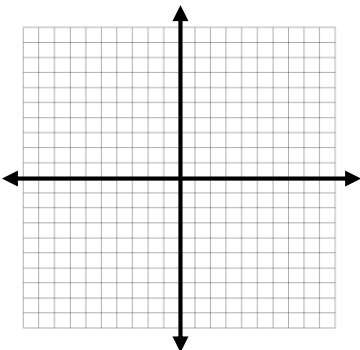
E(3, -9), F(10, 1), G(4, 10), H(-9, 3)



Determine whether the quadrilaterals below are parallelograms. Use distance formula to verify.

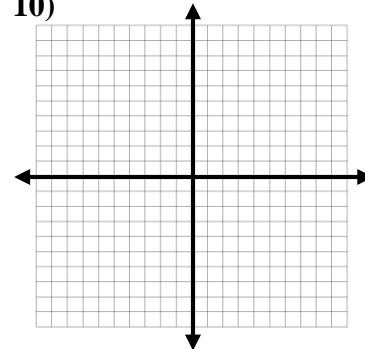
3. Quadrilateral ABCD

A(2,1), B(-8,-2), C(-9, -1), D(1, 2)

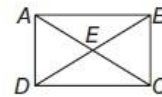


Quadrilateral WXYZ

**Z
W(-3, -5), X(-2, -
10), Y(6, -10), Z(-2,
10)**

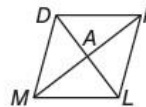


ALGEBRA Quadrilateral $ABCD$ is a rectangle.



1. If $AC = 2x + 13$ and $DB = 4x - 1$, find DB .
2. If $AC = x + 3$ and $DB = 3x - 19$, find AC .
3. If $AE = 3x + 3$ and $EC = 5x - 15$, find AC .
4. If $DE = 6x - 7$ and $AE = 4x + 9$, find DB .
5. If $m\angle DAC = 2x + 4$ and $m\angle BAC = 3x + 1$, find $m\angle BAC$.

ALGEBRA Quadrilateral $DKLM$ is a rhombus.



1. If $DK = 8$, find KL .
2. If $m\angle DML = 82$ find $m\angle DKM$.
3. If $m\angle KAL = 2x - 8$, find x .
4. If $DA = 4x$ and $AL = 5x - 3$, find DL .
5. If $DA = 4x$ and $AL = 5x - 3$, find AD .
6. If $DM = 5y + 2$ and $DK = 3y + 6$, find KL .

COORDINATE GEOMETRY Given each set of vertices, determine whether $\square QRST$ is a *rhombus*, a *rectangle*, or a *square*. List all that apply. Explain.

8. $Q(3, 5), R(3, 1), S(-1, 1), T(-1, 5)$
9. $Q(-5, 12), R(5, 12), S(-1, 4), T(-11, 4)$
10. $Q(-6, -1), R(4, -6), S(2, 5), T(-8, 10)$
11. $Q(2, -4), R(-6, -8), S(-10, 2), T(-2, 6)$

Answers:

1. Yes, Parallelogram. Opposite sides have the same slope.

2. No, not parallelogram, opposite slopes not congruent
3. Yes, Parallelogram. Opposite sides have the same slope.
4. No. Diagonals are not the same lengths.
5. Convex
6. Convex
7. Concave
8. 134°
9. 135°
10. 105°